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| **MEDIUM**  ***New Pathways for Sustainable Urban Development in China’s medium-sized cities*** |
| **Zhuhai scientific seminar** |
| **December 3rd-5th, 2016** |
| **Report** |

**3rd December 2016 (Day 1)**

**INTRODUCTION**

**Irene Poli**

Professor Poli (Ca' Foscari University of Venice, Italy) welcomes the organizers and participants to the workshop to reflect on new ways of sustainable urban policies in China’s medium-size cities. She then invites Professor Zhou Suhong, the Deputy Dean of School of Geography and Panning of Sun Yat-sen University.

**Zhou Suhong**周素红 (中山大学地理科学与规划学院)

The Deputy Dean expresses a warm welcome to all on the campus of SYSU on the occasion of the scientific seminar. She presents the structure of research at SYSU, with Departments and Research Institutes. SYSU is ranked first university in Guangdong, and top ten in China. It has 4 Departments and 8 Research Institutes. Research in geography is for example done at both the School of Geography and the Laboratory for Geo-simulation. At the School of Geography and Planning, Human Geography, GIS and Remote Sensing are key disciplines. She encourages cooperation and collaborations with SYSU researchers.

**Zhou Chunshan 周春山** (中山大学地理科学与规划学院)

Professor Zhou Chunshan (School of Geography and Planning, SYSU) also greats welcome on the behalf of SYSU. He develops why Zhuhai is a typical medium-sized city, as it features the expected issues. It is an economically developed area and a representative case study. The output of this seminar should be a reference for the development of medium sized cities.

**Natacha Aveline**

Professor Natacha Aveline (CNRS, Paris, France) addresses a speech in Chinese. She is very glad to be in this city, to be in this conference room provided by Sun Yat-sen University, which is such a good place for this scientific seminar. She also expresses her gratitude to Prof. Zhou Suhong and Prof. Zhou Chunshan. She briefly recalls the organization of the MEDIUM project, which aims at sustainable urban development in China following three axis: case studies of three medium-sized cities; collaboration with three universities; and support for European for young researchers mobility in China.

**Martine Laborde** and **Sebastian Haule**

Martine Laborde (CNRS, Géographie-cités) and Sebastian Haule (CNRS, Géographie-cités) present the Géographie-cités research unit, which has the role of coordinating the MEDIUM project. Géographie-cités is a joint unit between CNRS (larger research organism in Europe in all fields) and two Paris Universities (Paris 1 and Paris 7). There are 59 researchers, 20 engineers and 70 PhD students currently working in the unit, which includes three distinct teams: CRIA focusing on industry and planning, EHGO focusing on epistemology and PARIS on urban systems, spatial dynamics and science of complexity. A technical support is available for any partner of the project from dedicated engineers (Sébastien Haule, CNRS and Ludovic Challonge, CNRS), on geomatics, statistical analysis, geovisualisation. A short video of the head of the laboratory, Arnaud Banos presents new perspectives in simulating complex spatial systems and geosimulation. The different partnerships between Géocités and China are highlighted: the MEDIUM project since 2015, the ANR project Finurbasie, the Odessa project with Tsinghua and Sheffield, the ERC Seastems that includes 7 Chinese researchers and finally a recent PhD project on the Chinese Urban System under the direction of D. Pumain.

**PRESENTATION OF CASE STUDIES**

**Professor** **Céline Rozenblat**

*“The Integration of medium-size Chinese cities in the globalized world: the profile integration of Zhuhai”*

**CélineRozenblat** is Professor in Geography at the University of Lausanne, Institute of Geography and Sustainability.

**Presentation**

This study is a joint work with E. Swerts and A. Ignazzi. The research question is, in the context of a fast integration of China in the global economy, small and medium size cities beneficiate less, but could concentrate innovative firms, i.e. how can a city like Zhuhai become specifically innovative? A larger question arising is the definition of medium-sized cities, for which several definitions have been proposed in the literature. The working hypothesis here is that these are defined regarding the intensity of their integration in the globalization process.

Different effects are to test through the study, such as the administrative level, the urban size, the geographical location, in order to check if there is a specific economic profile of Zhuhai. The framework consists in multi-level city networks, from micro-scale, to meso and macro-scale. The data consists in micro-network data for companies (from Bureau Van Dijk), for the 3000 top world groups, with up to 8.105 subsidiaries (nodes of the network), linked by ownership relations. The aggregation yields an inter-urban network. The definition of cities is taken as Large Urban Regions (from joint work ERC Geodivercity/UNIL), with recent database for Chinese cities (E. Swerts).

Studying the world network of cities reveals primary stylized facts. The crisis had a strong impact on network topology, observable in 2013. Continents are very cohesive and only 20% of relations are inter-continental. When looking at China in 2010, 61% of linkages are inter-continental and only 6% intra-urban, whereas in 2013 the first went down to 45% and intra-urban rose to 10%. The zoom on China increases the importance of Bahamas, but the network is more balanced, the middle-sized cities having taken a sort of advantage. Rank-size laws for ownership and subsidiaries number (in- and out- degree) reveal the dominating role of Beijing and Hong-Kong. Middle-sized cities form a plateau in the distribution. The test of predictive power of population size on local network topology gives a R-squared of around 0.66, what is reasonable with a single variable. Do middle-sized city correspond to a change in regime, with a stronger importance of specialization?

Then the presentation zooms in on the three studied cities. Hangzhou has mostly fund management and service activities. The example of Zhejiang Expressway Company is developed. The economy of Hangzhou is very diversified, thanks to the proximity of Shanghai. Datong has on the contrary a strong specialization, and difficulties for attraction and diversification. Zhuhai is a quite interesting case. Despite being a special economic zone since 1980, Zhuhai is the second city-port of China behind Shenzhen, it has high accessibility and is developing a national High-tech development zone and a free trade zone. Administrative measures include the reduction of taxes. The example of Gree Electrical Appliances recalls the importance of strategic links with universities. Zhuhai appears to be quite well integrated, also in emerging countries. The second example of Livzon Pharmaceutical group shows an intensive collaboration with SYSU School of Medicine and Pharmacology (oldest of western medicine in China), but is mainly oriented towards the Chinese market. Zhuhai seems to have related and unrelated specializations, with a possible strong role of universities.

In conclusion, it is possible to define medium-sized cities by considering their integration in the globalization. The urban size effect decreases in time. The administrative effect is captured in the spatial spread of emergent attractive cities, i.e. in the proximity of metropolises. The specialization may be due to local resources such as in the case of Datong. The future of Zhuhai may rely in its specialization as an innovative place, in a perspective of polycentrism, beneficing from the proximity of major financial poles.

**Discussion**

Pr. Aveline insists on the fact that as for the city of Datong, it is difficult to put it into perspective with other cities, as it is strongly involved in coal industry, which is a highly strategic domain for the central government. The issue with the city is that there are very few other companies.

Professor Zhou Suhong points out that with city regions emerging, there is an additional difficulty to define the city. Several works now are focused to define functional urban regions, at different levels. Be part of the same functional urban region can be then using the same airports for international travels, i.e. the accessibility to the world.

Zhang Weiliang Jiaoshou wonders why the study focused on very particular companies such as Alibaba, which is highly internationalized, why these particular companies have been chosen? There is indeed a problem with Alibaba, as it is settled in a fiscal heaven, with one link only, no other company making its structure more complex. Further work should look at other companies.

**Professor** **Zhou Suhong** 周素红

*“New pathways for sustainable urban development in Zhuhai”* 珠海城市可持续发展新路径

**Zhou Suhong** is Professor at the School of Geography and Planning, Guangzhou, China.

**Presentation**

The Pearl River Delta (PRD) is one of China’s major economic poles. It has the largest urbanization rate among mega-cities clusters and the largest GDP, and a very large population (around 59 million) plus the floating labour not included in statistics. The history of urbanization can be decomposed into successive phases: in the eighties, it beneficiates from transfer of industries and the presence of Hong-Kong and Macao, thanks to the opening policy. The mode of development is from bottom to top, with the development of villages. Infrastructures are also constructed. In the late eighties and nineties, expressways and railways are achieved. In 1992, Deng Xiaoping strengthens the opening policy. In the mid-nineties, economic development is relatively cooled down, and adjustments in urbanization are done.

The spatial structure of PRD is a cluster of cities, one of the highest density areas in China. Different modes in the different areas can be observed. A relative unbalance between the western and the eastern corridors of the PRD exists. Dongguan gets mostly foreign investments, whereas Shunde private-owned local investments. Shenzhen, as a special economic zone, focuses on the high-tech and service sectors. Division of labour and cooperation is the rule, leading to the emergence of specialized clusters.

The situation of Zhuhai in that context is particular. There has been a lagging of economic development. The GDP has been very low whereas the urbanisation rate was high. Between 1980 and 1995, economic development oscillated without really taking off. A huge issue is that the investment efficiency is not high.

Zhuhai has however high quality resources, on which it should rely to build an efficient sustainable development trajectory. The transportation and infrastructures are over the standards. Furthermore, the numerous touristic resources are a rare advantage. The environmental protection and quality of nature are also very good for China. Finally, the real estate and living conditions are also of high quality. Zhuhai features an important number of advanced equipment manufacturing industries. The spatial position in PRD is exceptional, as it lies on the vertices of three strategic triangles, which are Zhuhai-Shenzhen-Guangzhou; Zhuhai-Hong-Kong-Macao and Zhuhai-Zhongsan-Jiangmen.

When examining the temporal paths of cities in a two dimensional space for economic comparison (more precisely, the trajectory in time of normalized local economic development against normalized economic development of adjacent regions), for the 21 cities of Guangdong, one can unveil cities that are in advance compared to regional average. Zhuhai stayed roughly in the same regime, compared to Dongguan or Shenzhen for example, but was however always in the better quadrant.

For the future development, Zhuhai should improve coordination between key industries and urban functions, and strengthen industrial cooperation. For that, infrastructure development is crucial. The cooperation of Zhuhai with Hong-Kong and Macao, which are close is good, but could be much higher. The Hong-Kong-Zhuhai-Macao Bridge currently on construction should be a precious asset. The impact of its construction, together with others infrastructures, will increase the integration of Zhuhai in the region. Accessibility maps before and after the opening of the bridge show the radical change in accessibility patterns, in particular a rebalancing between east and west, Zhuhai being in the center of this rebalancing.

In conclusion, we have seen a description of Zhuhai in a context of rapid urbanization of the PRD. Zhuhai, as one of Special Economic Zones in China, lagged behind but has a high potential of development. It has to take the new chances and follow the new pathways for sustainable development.

**Discussion**

Pr. Poli asks if the difference between East and West profiles implies also different environmental politics. A gap indeed appeared at the beginning, but the Eastern part of the PRD is now upgrading this aspect to meet environmental standards.

Pr. Critto inquires about the use of Sustainable Development Indicators in the region and in this work. It is not directly the case here, but some versions of such indicators are used at the local level, for example by the Planning Bureau in Zhuhai.

Professor Zhou Suhong emphases on the new opportunities brought by the Hong-Kong-Zhuhai-Macau Bridge. The area is of course closely linked to the development of Hong-Kong and Macao, and the long-term patterns in the Special Economic Zones are difficult to influence at the macro-level. But there is no need to break such a dynamic, and Zhuhai can indeed capitalize on its positioning. It has already a good position in the strategy of transformation of industries in China (entering the new era), and more potential to catch up with other cities.

Professor **Zhou Chunshan 周春山**

*“The development of medium cities in China”* 中国中等城市发展特征分析

**Zhou Chunshan** is Professor at the School of Geography and Planning, Guangzhou, China.

**Presentation**

Medium-sized cities play more and more important roles in both the economic and social development of China. Their transformations and characteristics deserve more research, since also the criteria to define the different type of cities have been changing together with Chinese urban development.

The main criteria to define a city has been the presence of non-agricultural population, a number that has also changed over the years. According to recent regulations, medium-size cities are considered those with an urban population between 100-500.000.

In China, in 2014, there were 100 medium-sized cities and 49 were super-large cities. These numbers remained almost stable in 2005 – 2010 – 2014 (respectively, 108, 110, 100), but other interesting trends can be observed.

Firstly, the trend experienced by most of Chinese cities has been a progressive change from medium and large city-size to metropolises.

Secondly, medium-sized cities have maintained relatively stable spatial distribution characteristics: they are mainly distributed in central-eastern China and especially in the central areas. Nonetheless, in the last decades, the proportion of medium size cities has been decreasing, and if we look at the data about the population density, we can see that this is low in medium-size cities (and it has been declining, in 2014 it’s 322/square Km) while large cities have the highest population density (more than three times that of medium-cities).

Concerning the average salary, the lowest value among all the type of cities is that of medium-size cities, which means these cities are relatively poor compared to the others (also compared to small-cities), even if from 2010 to 2014 it has passed from 29226 to 44810 RMB (but these values also go together with the increase in the cost of life as well!).

Thirdly, in terms of GDP the largest share is taken by large cities, followed by medium cities (but in terms of GDP per capita, medium cities values are lower than that of small-cities), moreover, the GDP of medium cities has been going up until 2010 and then it has been declining, and it concentrates in city clusters and in the cities settled around the Beijing- Shanghai railway. In this regard, it is relevant to consider that from 2005 – 2014 also the job creation in these cities has been decreasing and the majority of job created has been, indeed, along the Beijing-Shanghai railway line. Also, even if compared with other levels of cities, medium-sized cities have lager amount of GDP, population, government measures, etc. their overall efficiency isn’t high, both their industrial and employment structures – which is dominated by dominated by secondary industry - are low end and also financially they are not strong. In addition, they have more expenditure than revenues, and even if in terms of public expenditure for education (17%) they are just after large cities, they spend very little in science and technology (1%) - which create a great spatial difference between medium and large cities. Indeed, except for the Southeastern areas and for the Yangzte river Delta other urban centres investing in science and technology are dispersed (e.g. Guanzhong region, Inner Mongolia, etc.).

Fourthly, concerning the industrial structure and employment characteristics, compared with the cities of higher level, the proportion of primary industry employees in medium-sized cities is relatively higher (3,3%), even though the highest number of employees is in tertiary industry (almost 53%); followed by secondary industry (which has been, indeed, increasing from 2010 to 2014).

A final remark is about foreign-funded enterprises and the attraction of foreign capital, which are still low in medium-cities and more concentrated in higher-level cities.

The **discussion** that followed pointed out some aspects that deserve more research, to start and most importantly, what are the most adequate criteria to define cities and different types of cities, then also, why the salary of medium cities is lagging behind compared to the other types? One of the possible reasons is the competition among different cities (fighting for foreign investment), and medium cities are indeed weaker in competitiveness and industry upgrading. Real estate also can be a reason, since it plays a major role in redistribution of wealth in China. Another reason could be related to the characteristics of employment of these cities and the opportunity of job they can offer, indeed if students coming from small cities have the opportunity to study in large cities they will rarely decide to go back.

Other questions raised regarded the role of policy in the diminishing of speed of growth of these cities, maybe policy should focus more on medium and small cities, and find the best way to control size enlargement and population growth. In this regard, China needs a multi- dimensional approach to foster cities’ efficiency and liveability.

Doctor **Pan Yujian 潘裕娟**

*“The development strategy of Zhuhai city”* 珠海城市发展战略

**Pan Yujian** is at theZhuhai Institute of Urban Planning and Design, Zhuhai, China.

**Presentation**

Zhuhai is located in the west bank of the Pearl River Delta and to the South China Sea coast, and it is one of China's first established Special Economic Zone (in 1980), moreover it is the only city linked to Hong Kong and Macao cities with roads.

The development strategy of Zhuhai over the past 30 years has seen a lot of efforts to position the city as one of the most liveable cities in China, and indeed it receive honours and awards for the achievements in terms of city sustainability, environmental protection and regulations: currently Zhuhai is also pilot city of China Europe Low- Carbon Ecological Cooperation and pilot city of the National Sponge City Construction

The spatial strategies developed from the 80s made the city pass from the simultaneous development of industry and agriculture to the current orientation (started in 2000) to high-tech industries and the development of the city as the core of the west side of Pearl River Delta (according also to the Master Plan released in 2005)

The goal is to reach a total population of 6.5 million by 2060, with a construction area of 698 km2, with Hezhou as the city's future centre, and a the whole urban area developing according to “one core, two hearts and six groups”.

Nonetheless, the city suffers from many difficulties: e.g. the west – east connection is highly congested, the handling capacity of the airport is lagging behind, and the city in general has poor public supporting facilities, moreover many relevant projects that have not been completed yet, such as the bridge connecting HK-Macao-Zhuhai and Guangfojiangzhu intercity train). Zhuhai’s GDP per capita and per unit of construction land of Zhuhai is also low compared to that of the other Pearl River Delta city, such as Shenzhen, Dongguan, Guangzhou, Foshan, Zhongshan, etc.

Moreover, the city suffers of a huge gap between the Western (where most of manufacturing industries are concentrated) and the Eastern part (which is served by more service and infrastructures), but in general the industrial structure is quite weak and innovation driven development low.

Currently, the strategy is region-oriented and its main aim is to promote the cooperation and development of regional economy, to build the Guangdong-Hong Kong- Macao Bay Area as a world-city cluster and to create a new special economic zone (Hengqin New Area) together with other important economic support zone, based on the Guangdong-Hong Kong-Macao Bay Area and Pearl River - Xijiang economic belt. Such a strategy aims to drive the development of south-central and southwest regions, and foster radial effects of all South China and Southeast Asia, and it has been also defined as “connect the East, Exploit the West, extend the North, Enter the South”.

But according to the last Masterplan of Zhuhai (2015) – whose concept plan has been done by a Singapore company and it has been highly debated because of the decision to protect the wetlands which are close to the city centre – shows that the city also wants to develop as a tourist city, so the city is carefully regulating construction, water system, vegetation coverage and many other factors and will limit the city boundaries to 705 km2.

Moreover, the “U+” strategy (U-shape development belt + Western Central City), will promote the urban U-shaped development belt, build a multi-centre and relying on seven major industrial groups and urban functional groups, will promote multi-node linkage development.

To conclude, in the last 30 years, Zhuhai’s planning has addressed economic development together with regulation on urban construction and environmental protection. It has implemented what are called the "eight prohibitions" of environmental protection and the "eight unifications" of urban construction and the "five unifications" of land management, so as to promote the rapid economic development, while maintaining a good ecological environment and had also established a Liveable City Index System based on the following dimensions and principles: Ecology (Secure and Sustainable), Space (Compact and Pleasant), Society (Safe and Harmonious), Humanities (International and Diverse), Economy (Low Carbon and Innovative), Service (Quality and Sharing), Traffic (Green and Smooth).

**Discussion**

Unfortunately, due to time limits there was no time for discussion.

Doctor **Ye Yuyao** 叶玉摇

*“The urban spatial structure towards low-carbon transportation and an exploration of low-carbon city-construction”* 面向低碳交通的城市空间结构与珠海低碳城市建设路径探索

**Ye Yuyao** is at the Guangzhou Institute of Geography. He is specialized in energy efficiency.

**Presentation**

The object of this research is about transportation in the city, which is a sensitive subject, especially in developing cities. The pressure comes from carbon emissions from the transportation sector. The optimization of urban spatial structure and the promotion of low-carbon transportation have become the basic guidelines for urban planning in the low-carbon era.

It must be underlined that Zhuhai's traffic suffers from serious congestion, especially during rush hours, when the average speed is below 20 km per hour. In the latest list of “Traffic Jam City”, Zhuhai ranked the 28th among the 60 major Chinese cities evaluated and the fourth in Guangdong. The traffic jam areas are geographically localized.

Since 2015, Zhuhai has become one of the two pilot cities of Europe-China Eco Cities Link project, together with Luoyang (2014-2018). Currently, Zhuhai has already made explorations in various fields, including TOD planning strategy, green line planning, greenway planning, slow traffic system, etc. However, Zhuhai's low carbon and eco urban planning and construction still have far to go. By reviewing relevant researches, Ye Yuyao summarizes the relationship between urban spatial structures and carbon emissions by the transportation sector. What are the main factors helping reduce the carbon emissions in a city? These factors are the form, the function and the network. A compact urban form with effective mixed-uses and pleasant plot scales are all the features of a basic urban spatial structures and carbon emissions by the transportation sector. A compact urban form with effective mixed-uses and pleasant plot scales are all the features of a basic urban spatial structure oriented to low-carbon transportation, the traditional pedestrian city model and the modern public transportation city model by analysing international cases.

About the parameter of effective land use for low-carbon city construction, the research revealed the importance of the interactions between land use and transportation, as shown by the case of intensive land use in San Francisco and in Stockholm, which have long history in this area.

About the pedestrian city model, Yuyao mentions the case of Zurich, where inhabitants have an average 1,8 km daily distance from their homes and where one third of commuting is done by walking. There are liveable pedestrian surroundings. Moreover, a rapid transit system is one useful way to organize the residents' transportation. Around each public transport station, there are convenient services for the daily life of the citizens as well as population density control. Finally, the collective transportation stations are all located within a maximum distance of 300 meters from any point in the city.

Moving to another typical case, Singapore is characterized by an interesting planning of new towns. Indeed, new towns were developed along subway lines. 50% of the residents live within one kilometre around the stations. Almost all residents of the new towns live within a 5 minutes walk from bus stations.

Another interesting aspect is the integration of the building complex and the transportation system, exemplified by the example of Hong Kong. The building complex is a special building form that harmonizes the traffic space and building space. It also gathers a variety of features and urban facilities within the limited land.

Another good example of the low-carbon city is the most liveable city in the world, Copenhagen, where there was a finger-shaped planning of the city with transit lines.

The summarized and analysed theories and cases in the study can provide reference and experience to Zhuhai's exploration on the construction of low-carbon city. For the case of Zhuhai, urban planning aims at creating an “urban green line planning” with two hearts (Gongbei and Jita), four regions and seven towns, with environmental protection of selected areas in the city. The area of Sangchong is used as a key location for experimentations of low-carbon city construction in Zhuhai. Combining a compact urban form, effective mixed land use and liveable block scale are the main characteristics of a green transportation system.

**Discussion**

A remark was raised on the necessity to correlate transportation and pollution. The issue is that such kind of data is difficult to get without properly targeted measurement equipment.

Professor **Yuan Bingcheng 元炳成**

*“A study on the construction strategy of Qi’Ao island in Zhuhai”* 珠海淇澳生态岛建设战略研究

**Yuan Bingcheng** is Professor at the Beijing Normal University, Zhuhai branch.

**Presentation**

There are more than 40 islands in Zhuhai and Yuan Bingcheng will study the construction of the ecological island Qi'ao, which is one of the largest islands. The case study of this research, Qi'Ao, is seen as a strategic choice of Zhuhai ecological construction. Qi'Ao eco-island construction is a three-in-one comprehensive ecological construction of natural ecology, human settlement and economic ecology.

Qi'Ao is in fact structured among two areas, the island and the coastal area, with the offshore area. It is located in the northern part of Zhuhai, and is very well connected to the city. There is a bridge connecting the island to Tangjia Wan. This place has many advantages: the natural environment, the scenery, the culture, and the ecological development.

About the natural environment, even if Qi'Ao is very close to the city, it has a unique natural mangrove, evolving around the low and high tides, which is protected by the provincial administration. It has become a mangrove touristic park with wooden platforms and promenades.

The scenery is simply very beautiful.

The local and cultural life is very rich. Qi'Ao was famous for the resistance during the opium wars.

The ecological development is late but the unique environment reveals strong potential for its future development. How does the construction of an ecological island become possible when still today, the population lives from fishing?

To bring some background elements about Qi'Ao, there were some legal norms for eco-civilization. For instance, Li Keqiang introduced a guide on the development of eco-protection. It is supposed to make a nationwide model to find a greener way of development. But an ecological island involves the residents, the industry, the nature, the culture altogether. There is a need for eco-economy, eco-community, and not only eco-environment. But it is clear that the protection of the mangrove is the priority. In the 1990s, there were only 30 ha of existing mangrove but now, there are more than 700 ha after it officially became a protected mangrove. The natural habitat is very good for ecological and natural functions.

However, the eco-community is not achieved in Qi'Ao yet. The professor believes Qi'Ao should learn from experiences from solar countries, which now have created eco-industries and work with solar energy. In Qi'Ao, there is a serious problem with waste. A lot of garbage comes from the coast, because the sea brings a lot of dirty waste on the beaches of the island. A second serious problem is fish cultivation and illegal fishing. There is clearly a lack of framework to manage these issues. There are also other problems such as water treatment, land reclamation, beautification, invasive species threatening the mangrove, even if a large part has been restored.

On the strategic level, Guangdong province should implement functional region planning. On the execution level, a secular economy should be promoted, a protection net should be used to capture the waste, illegal fishing activities should be enforced, water treatment should be implemented, the cleaning of problematic species should be started. The construction of the eco-community should be followed along three principles: reduce, reuse, and recycle.

In the process of optimizing ecological environment, realizing ecological value, creating ecological brand, and realizing ecological leading, we should also develop eco-economy and low-carbon economy, create ecological community in order to build a nature-economy-society composite island ecosystem with natural ecological health, human ecological harmony, high-end industrial ecology. The government should have a leading role in the green architecture of the island, especially in the field of eco-tourism. The island has a potential of attracting a lot of tourists, with, for instance, a museum of the mangrove, ecological farming but also patriotic trips. To conclude, Qi'Ao needs public-private partnerships to achieve this ecological construction.

**Discussion**

After this presentation, a few questions were raised about small elements of context such as the situation of local waste.

Doctor **Zhang Guojun 张国俊**

“A comprehends evaluation on the development of industrial ecologicalisation and analysis of influencing factors – a case study of Zhuhai” 产业生态花发展水平的综合评价级影响因素分析——以珠海市为例

**Zhang Guojun** is at Guangdong University of Finance and Economics.

**Presentation**

As the industrial support for sustainable development, with the backdrop of acute resource and environmental problems caused by rapid economic development, “industrial ecologicalisation” has already been given much attention by the academic circles. But there is no unified definition, depending on the scale of each analysis. Some researchers focus on the macro level (legal framework), others on the meso level (industrial parks). The concept of industrial ecologicalisation developed during the 1990s, and it got introduced in China in 2015. Green ecology is a multi-disciplinary field of research.

This thesis is based on the study of Zhuhai city and tries to establish an indicator system for the comprehensive evaluation of industrial ecologicalisation from five dimensions, including economic development, ecological protection, resource consumption, pollution emission, and cyclic utilization of resource. Zhuhai was a city where tourism was the major industry in the 1980s but it then put a priority on industrial development. In terms of GDP, it is the third city in Guangdong province, and it is especially successful in its green areas (it ranked third out of 21 cities in Guangdong). Combined with HDI calculation, a comprehensive evaluation on Zhuhai's ecologicalisation from 2008 to 2014 was conducted. On the basis of the evaluation, discussion can be made to summarize the characteristics of Zhuhai's industrial ecologicalisation and the influencing factors. There was little improvement in energy consumption in the industry. But Zhuhai is an open economy and is affected by it on the environmental issues. The objective of the central government is developing the high-tech. The geography of Zhuhai is an advantage for the city. Therefore, ecological industrial clusters must be developed there. To conclude, we discovered that Zhuhai's industrial ecologicalisation has a tendency of yearly progress, where regional economic development plays an important role.

**Discussion**

Unfortunately, due to time limits there was no time for discussion.

Doctor **Yang Gao** 杨高

“The characteristics and influencing mechanism of spatial-temporal variations of migrants in Zhuhai

*”* 珠海外来人口时空演变特征及影响因素

**Yang Gao,** senior PhD student at the School of Geography and Planning, Sun Yat-sen University Guangzhou. His research has focused on Chinese rural-to-urban migrants, Chinese migrant workers’residential community and distribution of migrant population.

**Presentation**

This presentation examines the overall characteristics as well as the spatial and temporal development patterns of the floating population (流动人口) in Zhuhai, a medium-sized city located in the Pearl River Delta (PRD). Yang Gao’s presentation is divided in three parts: the research design, the research contents and the conclusions.

Yang Gao firstly defines the different components of his research study: the research area, the data sources and the methodology. His research focuses on a total area of 1635.64km2 including 20 administrative areas (街镇) of Zhuhai city, excluding Guishan town (桂山镇), Wanshan Town (万山镇) and Dangan Town (担杆镇). The data used are the 2000 and 2010 census, as well as the 2008 sample questionnaire survey on migrant workers in the PRD (the China Labor-force Dynamics Survey, 中国劳动力动态调查) provided by the Center for Social Survey of Sun Yat-sen University .

Before presenting the methods used in his research, Yang Gao gave a definition of the object of his research: the migrant population. He defines the “*wailai renkou*” (外来人口), the people arriving from outside, as those people who leave their personal residence and settle in the urban area for more than six months, without changing their *hukou*’s (户口, the household registration system) registration. This population is a wide group of temporary migrants, including *nongmingong* (农民工), the peasant workers.

Using statistical analysis and GIS spatial techniques, his research measures a wide range of Index (including the Segregation Index, the Isolation Index, the Mean pointer centre, the Index of population concentration, the Location quotient, the Spatial autocorrelation), revealing:

* The socio-economical features of migrants in Zhuhai, in particular their education level, their provenance, their Urban Settlement Intention, their social segregation and isolation in the urban area (comparing it with the situation in Shenzhen).
* The spatial distributions of migrants in Zhuhai
* The spatial and temporal patterns in the evolution of migrant populations’ gravity center, of spatial agglomeration of migrants, of migrant population density and of migrants population concentration in Zhuhai from 2000 to 2010.
* The factors which lie behind such changes concerning the migrant population in Zhuhai

The results show that:

1. The migrant population in Zhuhai mainly comes from the neighboring provinces (such as Hunan, Guangxi, Hubei, Henan, Sichuan, Jiangxi and Chongqing), it has a relatively high level of education, and a strong intention to settle down in the city. Furthermore, a complex pattern of socio-spatial differentiation has been revealed.
2. The non-native population is mainly distributed in Xiangzhou district, Jinwan district and Doumen district, showing obvious distribution differences among rural and urban areas. Areas of high migrant population density are mainly concentrated in the central area of the city. The hotspot area (high accumulation area) is located in Xiangzhou district (central city area), and the cold spot area (low accumulation area) resides in Doumen district (West city area).
3. There have been significant changes in Zhuhai’s floating population spatial distribution patterns: a gradual shift to the South-West city area, a general trend toward decentralization (migrants are more scattered in the city), a spatial variation that changes from town to town.

Finally, Yang’s research reveals that changes in migrants’ distribution patterns are influenced by housing factors, employment opportunities, traffic conditions, social networks and urban planning.

Yang Gao concluded his presentation defining the limits of his research and highlighting areas for improvement. In fact, his study lacks a general overview on the migrant population’s development process and on its main characteristics in Zhuhai, as well as an analysis of the mechanisms impacting their spatial evolution. A combination of the fourth census data is needed to extend the study on a more complete temporal dimension. Moreover a comparative study with cities of bigger size, such as Shenzhen, will be useful to understand the characteristics of the migrant population in a medium-sized city as Zhuhai.

**Discussion**

Questions were raised about the differences between Zhuhai’s and Shenzhen’s migrant population, since Yang Gao introduced it quickly during is presentation. It emerged thattheeducation level is higher in Zhuhai, but the segregation level is lower than in Shenzhen. The Index of population concentration is higher in Shenzhen, where there is a larger migrant community.

Doctor **Hu Jincan** 胡锦灿

“Social Spatial structure in Zhuhai” 珠海社会空间结构

**Hu Jincan:** senior PhD student at the School of Geography and Planning, Sun Yat-sen University Guangzhou and member of the Guangdong Key Laboratory for Urbanization and Geo-simulation. His researches have focused on Chinese urban and rural socio-spatial structure and regional development planning.

**Presentation**

Hu Jincan’s presentation focuses on the study of social and spatial structure of Zhuhai city and on its formation mechanisms. While establishing some enriching comparison with other cities’ structure, Hu’s research emphasizes the need to optimize the layout of urban space, in order to alleviate the spatial disparities of Zhuhai and to adapt to the needs of society.

The research questions were clearly stated at the beginning of his presentation:

* Which are the distinctive features of Zhuhai’s socio-spatial structure?
* Which are the main formation mechanisms responsible for of this structure?
* How to deal with the socio-spatial differentiation of Zhuhai City?

Based on the sixth census data of 2010 and on the second national land survey data, Hu Jincan selected a total of 46 variables reflecting five main aspects of the social and spatial structure of the city, including population, household, housing, economy and land. According to his research, five factors impact the most the social and spatial structure of Zhuhai: the proportion of family households of two generations; the proportion of the urban highly-educated population; the population density; the proportion of households; the proportion of young people and migrant population. Employing those five factors, the results in Zhuhai are divided in five distinctive parts:

1. the city centre, characterized by the highest population density;
2. the peri-urban area, mostly inhabited by local families and young people;
3. the suburban area, mostly inhabited by non-natives and characterized by low population density;
4. the outer suburbs, mostly inhabited by rural families;
5. the islands area, mostly inhabited by single-generation households and characterized by high population density

In order to better understand the spatial and social structure of a medium-sized city such as Zhuhai, Hu Jincan draws a comparison with Guangzhou and Shenzhen, two megalopolises in Southern China, as well as with Nanchang, a medium-sized city in eastern China.

Compared to Guangzhou, Zhuhai’s social structure seems less complex, and characterized by the important presence of a new migrant population. Moreover, the distribution of those immigrants over the urban space differs from Guangzhou’s. In fact, in Zhuhai the non-native population is scattered throughout the city, with a higher concentration in the coastal area (i.e. high-tech zone, Hengqin New District). A common feature between Zhuhai and Guangzhou is the development of the suburban area, which lies in the transformation of small towns around the rural areas into edge cities.

The comparison with Shenzhen shows that in both cities the migrant population is an important driving force for the segregation of the social space. Due to the industrial development of these two port-cities, both Zhuhai and Shenzhen have been attracting a high number of migrant-workers. Furthermore, because of their similar spatial structure (long and narrow), the urban growth pattern of Zhuhai and Shenzhen differs from the concentric zone pattern which is typical to Guangzhou’s urban development. Finally, the different scope of their urbanization process, reflect the difference in size of their rural area.

Since both Zhuhai and Nanchang are medium-sized cities, the comparison appears more balanced in terms of social structure. However, there are significant differences in the spatial structures of these two cities. In Nanchang, the old neighbourhood, the urban neighbourhood and the agricultural neighbourhood are prominent, while in Zhuhai, the most important area is the new industrial district, due to the concentration of non-native population.

After illustrating these three thoughtful comparisons, Hu Jincan summarizes Zhuhai’s social and spatial structures’ main characteristics, emphasizing its fan-shaped model constituted by two main transportation arteries wings. He also underlines the impact of Macau, Zhongshan and Tanzhou on Zhuhai’s social and spatial structure. He, then, presents four mechanisms responsible for the formation of this particular structure, including the market, the public policies, the family life cycle and the role of nature and history.

To conclude his presentation, Hu Jincan makes some suggestions for optimizing the social and spatial structure of Zhuhai. He believes that the overall planning of Zhuhai requires comprehensive evaluation of the economic development, public facilities and population needs, in order to boost the spatial structure of the city. Transportation, industry, production mode, and public services are crucial forces that should be integrated in the future planning of Zhuhai to ensure substantial change, and the local government should play an active role in this optimization process.

**Discussion**

Due to a lack of time, no questions were raised.

**4th December 2016 (Day 2)**

**INTRODUCTION**

**Zhang Weiliang** **– 张卫良**

**Zhang Weiliang**, PhD in history, is a professor of history and director of Institute for Urban Studies, affiliated to the school of Humanities of Hangzhou Normal University. His main interest is in urban history, urban sociology and heritage. His researches have focused on the British economic history and urban history. He currently works on the issues of urban strategy, urban slum, and urban sustainability.

**PRESENTATIONS BY YOUNG RESEARCHERS**

**Cinzia Losavio – 秦霞**

Phd student

Paris Panthéon Sorbonne University – Research Unit Géographie-cités, CRIA

*“Migrant workers and Chinese medium-sized cities: the issue of migration in China’s new urbanization strategy”*

**Presentation**

Cinzia Losavio presented her PhD research project about migrant workers integration in medium-sized cities and her first findings after one month of field research in Zhuhai (Guangdong). In China, urban development and internal migrations go hand in hand with economic transformation. During the first decade of Deng Xiaoping’s economic reforms in the early 1980’s (改革开放), driven by a logic of social control, the Chinese government tried by various means to limit and to orient rural to urban migration in relation to the economic needs of the country.

This important and growing phenomenon has turned the country’s human geography upside down, increasing the urban population rate from 26.4% in 1990 to 56.1% by the end of 2015, contributing to the emergence of a new social category: migrant-workers (农民工).

While migrant-workers have played a crucial role in shaping China’s economic growth and urban development, their presence in the urban space has been significantly increasing pressure on China’s largest megalopolis’ resources (in terms of housing, education, health care and other public services). Migrant-workers do not only affect labour supply but also the demand for goods and services, making them subject to special concern for the national government.

In parallel, in the aftermath of the 2008 global financial crisis, a major shift in China’s socio- economic trends has taken place: the transition from an export-led growth model to one powered by domestic consumption and a consequent expansion of the middle class.

These two important phenomena result in a new urbanization strategy, which lies in the integration of migrant-workers in small and medium-sized cities. According to the 13th Five-Year Plan of China (approved by the 12th National People Congress on March 16, 2016), the population of megacities will be strictly controlled from 2016 to 2020. Simultaneously, migration to small and medium-sized cities will be more clearly encouraged, undoubtedly generating new economic formats and social patterns. This new strategy will help slow down the one-way flow of migrants and reduce pressure on megalopolis.

Zhuhai, a fast-growing medium-sized city, has been chosen as a case study for Cinzia’s PhD research, for two main reasons:

* -  First, because of its position in the Pearl River Delta: Zhuhai is a sub-regional center located in one of the most attractive areas for migrant-workers.
* -  Secondly, a new round of the population development plan is currently being implemented in Zhuhai. On September 14th 2016, Zhuhai’s local government published “The 13th Five-Year Plan of Population Development”, demonstrating its main stakes in Population Structure optimization and Urbanization Rate. We believe it may create new opportunities for migrants’ integration.
* Considering Zhuhai new development strategy, Cinzia Losavio discussed some relevant research questions for her fieldwork:  How do migrant-workers participate in the socio-spatial reconfiguration of medium-sized cities? What determines the transition from being a migrant-worker to becoming an urban-consumer/citizen?  How to settle down migrant-workers to promote the process of urbanization?
* In order to reply to those questions she formulates a preliminary hypothesis: in line with the State-Party’s rhetoric calling for “people oriented” (以人为本) ethos of development (Lin, 2006), migrant-workers integration in medium-sized cities as the core of China new urbanization strategy reflects a triple objective of the Chinese government: promote the social and spatial reconfiguration of smaller cities, in order to correct the development gap between cities of different sizes; obey the new economic aspirations of the country; ensure the orderly management of internal migration.
* Her research will focus on Tangjiawan Town (唐家湾镇) a division of Xiangzhou’s district, which is located in the northern part of Zhuhai. She has already started to conduct her fieldwork documenting in one of the 16 communities (社区) of Tangjiawan, the old village of Tangjia. Tangjia village is a historical neighborhood mostly inhabited by migrants-workers, which is experiencing a gentrification process. Is this gentrification process going to change property value in Tangjia leading to an increase of housing prices? In the following months she will observe if migrant workers continue to settle in this area.  She will also detect other migrant-concentrated areas in the city and understand the housing offer for *nongmingong*.
* Steering away from a hukou-centered approach Cinzia Losavio will try to understand the integration process by going through it with migrant-workers. She will place actors’ viewpoints and individual trajectory at the centre of her approach, giving voice to the people who are experiencing this transition. As she believes that the integration process is at the crossroads of social context, public policies and actions of individuals, she will use mixed methods to investigate this social process, including: in-depth interviews with migrants-workers but also with actors of the administration at different level; ethnographic observation in the selected areas; documentary analysis on national and local laws and regulations, as well as on national and  local press.

By emphasizing on the importance of studying migrant workers as a heterogeneous category, her main research aims at highlighting the role of migrant workers in the recent urban dynamics of medium-sized cities in China.

**Discussion**

Questions were raised about the possibility to generalize the results of this research to other cities and megalopolises. In China locally diversified socio-economic and environmental situations force provincial and municipal governments to adapt to the national regulations at their priority and challenges. Issues confronting all levels of government in managing migrant workers population are not unique, resulting in a diversified range of measures to address the local situation. It is quite difficult to generalize the results of this research to cities at all levels.

**Juste Raimbault – 于思特**

Phd Student

Paris-Diderot University – Research Unit Géographie-cités, PARIS

*“Towards a theory of co-evolution networked territorial systems: insights from transportation governance modeling in Pearl River delta”*

**Presentation :** This presentation is about work-in-progress for a PhD thesis, in particular on the construction of a geographical theory for territories and networks and its application to a model of transportation governance aimed to be applied to Pearl River Delta (PRD) mega-city region.

The scientific context of Complexity approaches to urban systems is first introduced, and put in perspective with Complex Systems approaches in other fields of science. In that frame, the knowledge framework of Theoretical and Quantitative Geography, which co-constructs theories, models and empirical analyses, is a way to position the study of Urban Systems within Complexity. The subject of the thesis is recalled, namely the investigation of relations between Networks and Territories through the construction of models of co-evolution between land-use and transportation networks. This presentation proposes a geographical theory, and then applies it to Transportation Governance in DPR.

The theory relies on various empirical and modelling previous works. A first example shows how simple co-evolutionary dynamics can reproduce stylized urban forms. A second reveals the existence of autonomous morphogenetic processes by the calibration of an aggregation-diffusion growth model. The spatial non-stationarity of correlations between network topology and urban form is shown empirically for Europe, and simple coupled models are shown to be able to produce such a range of potential correlations. Finally, network effects are revealed at the macro-scale by calibrating a model of growth for French city system. The theory considers networked human territories from an evolutive urban theory perspective, and postulates that the existence of morphogenetic processes in which networks are essential drivers is equivalent to the existence of co-evolutive niches in these systems.

A model for Transportation Governance in Mega-city regions is then presented, the LUTECIA model that couples a LUTI model with an infrastructure provision model. The transportation network evolves according to decisions taken by governance agents, following a game-theoretical framework, where agents seek to maximize the expected accessibility of their area. Examples of model output on synthetic configurations, and of model exploration are given. The future application to DPR is discussed, in particular its special characteristics making the region a perfect candidate: the regional governance as a new level of state action, the large development of infrastructures in a relatively short time, the conflicting regional and municipal master plans, the planned bridges across the delta and the high economic competition between the cities. Retrospective model calibration is expected to unveil actual governance processes, whereas calibration on planned and optimal infrastructure should respectively give first collaboration patterns equivalent to the central planning, and then potential optimal governance processes.

In conclusion, from this particular model and its application to the case study, theory will be refined. The knowledge production process is itself a metaphor of studied geographical processes since it is coevolutive and complex. Furthermore, it is wanted as vertically and horizontally integrated, interdisciplinarity being a key factor to go beyond the artificial distinction between qualitative and quantitative.

**Discussion**

Pr. Aveline asks for some precisions on the notion of morphogenesis that was too briefly evoked. Some precisions are given: in the frame of an interdisciplinary work in progress, the notion was scrutinized from various point of view, and the satisfying emerging definition of morphogenetic processes is self-organizing processes, in which particular causal relations between form and function imply an emerging architecture.

Pr. Rozenblat asks how the presented examples and theory tackle the multi-scale nature of urban systems. This aspect is for now indeed poorly integrated, as the first objective is to obtain sufficient simple models of complex urban processes. Building huge gas factories makes no sense when the behavior of each brick is not known, and is furthermore a slippery slope towards over-fitting. A careful building of multi-scale models is necessary. It is expected to be next steps, for example the coupling of the macro-scale growth model with the meso-scale reaction-diffusion growth model.

**Liao Liao 廖了**

Post-doctoral Research Associate

Institut d’Etude Politique d’Aix en Provence, Cherpa

*“Evolution of management in the development zone in Zhuhai: an emergence of a local model of governance”*

**Presentation**

With many decentralization reforms carried out in China, the huge urban development initiated during the 1980’s has intensified with a rapid growth of development zones. Data of 2009 show that China's 54 state-level development zones with 0.04% of the country's total land area, represent 10% of industrial output value and industrial added value. The development zone has either become a new city, a new independent administrative zone or changed into a new technology industrial park. We may consider it as an important role of Chinese urbanization. Besides, many political or administrative innovations or reforms have also been experimented in the development zones, leading to different models of management, such as Administrative Region Management Model of Qingdao Economic and Technological Development Zone, Government and Enterprise coexistence management Model, such as the model in Suzhou Industrial Park, and Entrepreneurial Management Model of Minhang Development Zone in Shanghai and Shekou Industrial Zone in Shenzhen. Meanwhile, many powers and resources have been decentralized to the local authorities. Linked to the local economic development, more and more local actors participate into the local public action. However, in the past, the local management was very hierarchical and bureaucratic, as Wu (2002) pointed out, before economic reforms, the former three systems were pillars of socialist urban governance, which were based on the Party-state System, Household Registration System and Work-unit System and which prevented rural peasants from moving into the cities. Thus, research on the evolution of local model of management, or even, whether we can apply the notion of growth coalition to the Chinese context. Besides, by borrowing the conception of local “policy network”, we may also analyse the interactions between the state and social forces or the citizens in order to examine the nature of local governance in China, or perhaps to discuss about the transitional characters of the political regime or the possibility of limited pluralism in China.

More and more discussions about the governance mode of the development zone have been carried out among the Chinese researchers. However, the discussion from the perspective of local governance is still little mentioned. With China's decentralization and economic and social development, China's local governance model has undergone tremendous changes. Local authorities are considered as an important actor to adjust the local structure and functions, while with the increasing development of private enterprises, dynamic participations of these enterprises have been found in local place. In the local development process, the local governance model has been evolving, showing a trend of diversification, and this phenomenon is particularly prominent in China's development zones. Development Zone is not often considered as an administrative zone, but a zone mainly based on economic functions. In the development zone, the quasi-government administration of the Committee of management (CM) functions as an administrative agency that manages the zone. Many research show that development zones often have a management model, that is the CM. Besides, there is usually a development company, with the characteristics of the company to implement the specific task of construction and management of the development zones. At the same time, a large number of Chinese or foreign enterprises many have settled within the development zone. Through the CMs, these enterprises can express their demands for their development. Therefore, in the local context, how the CMs localize and implement their functions, how other actors, such as the public or private enterprise or the associations of entrepreneurs participate in local governance have become an important issue of local governance.

Zhuhai Hi-Tech Industrial Development Zone has been chosen as a case study, mainly for two reasons: firstly, high-tech zones represent an important form of development zones, and due to their emphasis on science and technology and economic development, high-tech zones in China have been valued and developed. Secondly, Zhuhai is a special economic zone, with its open and flexible policy, which presents also the forefront of China's policy. Zhuhai (national) high-tech industrial development zone have been developed since 1990s, local participation have been also formed and developed. Both characters help us to examine the position, roles and influence of local governments as well their delegated institutions. Through the discussion about the interactions in Zhuhai Hi-tech Zone, the study tries to characterize the interactions between the state and social forces or the citizens in order to examine the nature of local governance in China, and the patterns of interaction between different actors.

For the study, quantitative and qualitative methods will be used. Firstly, quantitative information concerning Zhuhai Hi-Tech Industrial Development Zone will be collected from the Provincial/Municipal/District/Zone authorities, local development journals, documents from universities or research centres. In a second time, semi-directive interviews with officials at different levels of governments, entrepreneurs, journalists and professors or researchers will be conducted on the issue of evolution of this development zone in Zhuhai.

In the following **discussion**, some question were raised regarding the questions of the questionnaire that Dr. Liao want to submit to companies, in particular is it relevant to ask if the CEO of the company is a member of LPC (Local People’s Congress) or LPPCC (People’s Political Consultative Conference). The reason this is meaningful to better understand the interactions between local authorities and local entrepreneurs.

**Juste Raimbault – 于思特**

Phd Student

Paris-Diderot University – Research Unit Géographie-cités, PARIS

**Cinzia Losavio – 秦霞**

Phd student

Paris Panthéon Sorbonne University – Research Unit Géographie-cités, CRIA

*“Agent-based modeling of migrant workers residential dynamics within a mega-city region: the case of Pearl River Delta ”*

**Presentation**

This presentation focuses on a collaborative research projects between Juste Raimbault and Cinzia Losavio, and it is the result of a transfer of knowledge between researchers with very different backgrounds and methods.

Combining qualitative and quantitative research an agent-based model is used to simulate residential dynamics of migrants in the Pearl River Delta (PRD) mega city region. Although the model doesn't use statistical data but synthetic data, the two researchers identified a need for qualitative research in order to further investigate relevant contextual factors.

First, they gave a clear definition of Mega-City Regions (MCRs), which are integrated sets of cities and their surrounding suburban hinterlands across which labour and capital can be reallocated at very low cost (Florida, Gulden, & Mellander, 2008). This notion was first coined by Gottmann (1961) using the term *megalopolis* – defined as an “urban area of several tens of millions of people, including several cities and major urban centres, and extending continuously over several 100 km”. Since metropolitan regions not only grow upward and become denser, but also grow outward and into one another (Florida et al., 2008), MRCs are strongly characterized by the “symbiosis between urban and rural areas”. The result of this fast growth is a network of metropolitan areas deployed around very large cities (Swerts & Denis, 2015). Other MCRs’ characteristics are migration flows, density of connections, and regional migration patterns.

Second, the reason why they chose PRD as unity of the study is explained. Since the gradual decentralization of the State power, which occurred in the beginning of 1990, MCRs have become a new scale of Chinese State regulation. In particular, the Pearl River Delta represents the most prosperous and dynamic one in term of migration waves. Since the Open Door Policy was implemented in 1978 the PRD launch a process of rapid economic and social transformation, becoming a global manufacturing region attracting an increasing number of migrant-workers from all over China. The fast economic growth results in an astonishing rise of the population in the area, which today count more than 50 million people. If during the first year of the opening-up reforms the barycentre of the region was Guangzhou, over the last decade PRD has become increasing polycentric.

Taking PRD as the unit of study, the model try to reproduce migrants’ residential patterns taking into account the full range of migrants’ socio-economical status and their evolution.

Although migrant workers are generally considered and treated as a uniform category, Cinzia’s previous research showed how considering their economical, cultural and human capital, migrant workers are a very diversified social category. Three dimensions have been proven to be essential for understanding migrant workers: the professional dimension, the residential dimension, and the generational dimension. Those dimensions not only influence migrants’ economical situation but also their residential location, trajectory, and duration into the city. It results that migrant workers have different mobility patterns, which the model is aimed to simulate.

Considering the diversity of migrant workers and translating it in qualitative stylized facts that correspond to precise patterns of synthetic data, this model aims at establishing a new perspective for understanding China’s urban and regional mobility employing a more qualitative approach, specifying the mechanisms though which Party-State shape the parameters of migrants’ choices.

The approach taken here can be described as hybrid agent-based modelling. Agent-based models (ABM) can range from toy models to fully parameterized models, and we here start from data and qualitative stylized facts, to build a model that will be validated and/or calibrated on output data and qualitative behaviour. Recent trends in ABM include pattern-oriented modelling, new practices in multi-modelling and high performance computing (HPC), and the model proposed here enters this framework.

The structure of the model is wanted simple but included two scales of evolution: the meso-scale conditioning population and economic opportunities spatial distributions, and the micro-scale corresponding to the level of migrants’ residential dynamics. The variety of economic profile is taken into account with a tuneable wealth distribution, and the corresponding economic categories. Dynamics follow discrete choice, for which utilities include accessibility, cost of life and risk aversion. An additional term allows us to include state regulations. The temporal evolution is sequential, first at the meso scale (Gibrat’s law and scaling laws); new migrants enter the city and settle according to their social network; discrete choice migrations occur; and variables are finally updated.

The model is implemented in Netlogo and HPC exploration through the model exploration software OpenMole. It is for now only implemented on synthetic data, i.e. synthetic city systems respecting simple rules (rank-size laws, monocentric cities). First results allow us to obtain the statistical behaviour of the model for some parameter points. It confirms the internal consistence and gives the number of repetitions needed to reach a certain confidence interval under some assumptions. Some phase diagrams were obtained, and although seem to follow expected behaviour for obvious parameters. Results are too preliminary to draw any conclusion on unexpected emergent behaviour. Further work will be the full exploration on synthetic data, then stylization and scenarios for real PRD configurations, and the corresponding model behaviour on real and hybrid configurations. Targeted experience plan should answer to specific questions such as the role of economic diversity or the influence of state regulation. Iterative further models constructions are a potentialities depending on qualitative outputs. The final expected results are the impact of processes linked to migrant diversities on emergent dynamics, and the unveiling of state strategies through regulations.

In conclusion, this work is a first insight into an interdisciplinary complex approach on meso-scale migration dynamics. In this paper, both qualitative empirical knowledge and quantitative theoretical knowledge are crucial for its success, and qualitative fieldwork is as important as good modelling in order to not end up quickly into dead-end streets. Furthermore, it is wanted as complementary to “classical” approaches (typically quantitative contributions such as statistics or equilibrium economics).

**Valentina Anzoise – 周迪娜**

Post-doctoral Research Associate

Ca' Foscari University of Venice, European Centre for Living Technology (Italy)

*“Planning, representations and perceptions of China’s urbanization: a case study on Hangzhou Future Sci-Tech City”*

**Presentation**

Hangzhou, capital of Zhejiang Province and second largest metropolis in the Yangtze River Delta Region, in the last 30 years has faced several changes related, on the one hand, to the implementation of different comprehensive master plans (i.e. 1981-2000, 1996-2010 and 2015-2020), specific policies and regulations and, on the other, to the presence of many non-state-owned industries.

In particular, the last version of the Master Plan (2001 – 2020): led to the annexation of Xiaoshan and Yuhang counties as administrative districts of Hangzhou City, and in the new release it was also added that Hangzhou had to enhance the city’s scientific innovation and regional comprehensive services.

As a matter of fact, the different rounds of administrative rescaling and adjustments have accelerated Hangzhou expansion and spatial restructuring and made it become a, dispersed, multi-nuclei city (Wei, 2005; Zhang et al, 2009).

Moreover, the annexation of 2001 – due to the abandonment of the previous concept of satellite towns and the preference to centralize resources – made Yuhang became the Hangzhou’s largest district, and the municipality solve the problem of land limitation to urban development reaching 3068 km² (from 682.9 km² in 2000).

The study aims was to analyse the visions channelled by the planning of Hangzhou urban development and modernization focusing in particular on Yuhang which is, indeed, experiencing a rapid urban development. Moreover, among other projects, in 2011 Yuhang was awarded the national overseas high-level talents innovation base (demonstration zone together with Beijing, Tianjin, Wuhan) and it is now implementing the planning of Hangzhou Zhejiang Future Sci-Tech City (<http://www.zjfuture.gov.cn/english/>).

Considering also that the Future Sci-Tech City lies on Hangzhou western urban fringe, in an area of great ecological value and relatively close to downtown (even if until few years mainly by farmlands and wetlands), the study questioned some typical urban dilemmas and the cascading effects triggered by such a massive (and rapidly implemented) planning. The main hypothesis are base on the recognition that urban fringes – as it is the case of the area where Hangzhou Zhejiang Future Sci-Tech City has been established - are very dynamic but also critical social and geographical entities where different populations, functions and opportunities (and threats!) might coexist but, at the same time, hold different perspectives, expectations and needs. As such, they require comprehensive research approaches in order to pursue urban sustainable development while ensuring high flexibility to future changes. The specific angle chosen to observe such transformations was, therefore, that of the different stakeholders of Hangzhou Zhejiang Future Sci-Tech City (i.e. entrepreneurs, researchers, residents, etc.) and to analyse how they perceive such a transition.

The fieldwork has been conducted using visual ethnography methods intertwined with official documents analysis and background interviews. In a second phase, the interviewees have been shown a collage of visual elements of the area under study which worked as a palimpsest capable of containing and fusing together different modes of perception and vision, triggering multiple and simultaneous levels of understanding (Anzoise et al 2016).

The interviews with images revealed the different ways sustainability and development are framed (and the need for some, given the current compromise China has to accept to modernize, to slow down at a certain point to address, also, emerging environmental and social problems), as well as the concern for the consequences of massive construction on the quality of water and soils and food, etc. Also the planning of brand-new and hyper-functional cities and development zones has been questioned, for the threat it can represents in terms of social and economic diversity.

Such results, confirm the crucial role of city image construction in development and sustainability discourses and the need to go beyond monitoring, management of resources, rationality, and find novel ways to analyse also how social discourses and imaginaries develop (since they are a constitutive part of change and not only a support to it). Closely connected to this, is the need to critically rethink to urban planning itself, to its practices and *discursive and material nature* for the role they play in the framing, understanding and tackling of sustainable urban development (Brand & Thomas, 2005; Fainstein, 2000).

In the **discussion**, questions were raised about the images selected to conduct the interviews, i.e. why not to use images produced by the interviewees, and also about the context under study, i.e. maybe it’s not the Future Sci-Tech City itself the case study is just that area as a fringe zone. Dr. Anzoise answered to the first question saying that the images selected have been chosen after a long fieldwork, a series of previous background interviews including informal exchanges with the interviewees and other relevant social actors. Moreover, what at the centre of the research question is the planning of the area and how it is affecting landscape (in the broad sense of the concept). So the images, have been selected for the coexistence they allowed of different and oxymoronic perspectives that characterize urban transitions, at the same time interviewee could select to comment just some and then re-order and build their own visual narrative, in so doing the images served to progressively get closer to the comprehension of the categories participants use to define the processes they are embedded in but at the same time challenge the hypothesis of the researcher. Regarding the context, indeed the case study area has been selected because the phenomenon of high-tech or development zones in China is quite diffused indeed in those fringe zones – which are the areas where the city is expanding - and these are being dramatically transformed by planning. The interest to do research on these specific contexts is based relevance the development of these areas had in the process of urbanization and modernization of China.

**Judith Audin 朱蒂丝**

Post-doctoral Research Associate

Sciences Po Aix (CHERPA), France

*“The reshaping of social groups through the process of urban renewal in post-socialist China: a case study on the coal miners in Datong”*

**Presentation**

While research on Chinese urban contexts is developed on major cities (Beijing, Shanghai, Chongqing…), it is still less the case for small and medium-sized cities. Based on multi-sited ethnographic research within the MEDIUM project, this presentation analysed the evolution and configurations of urban lifestyles in a medium-sized city with a heavy industrial background: Datong, located in the Northern part of Shanxi province. Studying residential practices and housing issues allows understanding the power networks and social practices in this city facing economic decline and imminent massive lay-offs in the public sector. In order to better describe the slow process of decline through the families’ points of view, Judith Audin decided to focus on the population of coal miners in their residence place.

This research presented the context and social consequences of a major urban renewal (*chaiqian*) policy carried out on a large scale in Datong’s Mining District (矿区 *kuangqu*) by Tongmei, a state-owned company in charge of the coal economy in Datong. Tongmei is a public structure, a work unit (*danwei*), founded in 1949 under the planned economy. Still today, its sphere of responsibility goes far beyond the workers’ work: it is also in charge of the families’ quality of life, providing social benefits such as community transportation, retirement pensions, health care and housing. In 2006, Tongmei invested in the construction of a new residential area in Datong, « Heng'an Xinqu/Penghuqu », aiming at hosting a population of 400,000 residents who used to live directly on the site of the mines. The ethnographic fieldwork carried out by the author in 2016 allowed to study everyday life practices in the coal-mining area, and more precisely the transformation of urban lifestyles in Penghuqu, a new residential district of Datong, in order to reflect on the dynamics of social control and collective mobilization in 21st century China.

Different effects of this renovation policy were analysed: how does the urban city space transform, while people move away from the coal mines? In a context of economic crisis, how does this urban renewal policy impact the configurations of local power relations?

In Datong Mining district, an important proportion of mine workers and their families used to live directly on the site of the mine, far away from the urban lifestyle, in small houses that they built themselves in a chaotic way. Most houses were made out of the stones found on the mountain. There was no direct access to electricity, water. Not only did the families breathe an air polluted by coal, they also burnt coal as a heating practice. Taking into account the dangerous and precarious living conditions of these *danwei* members, Tongmei Group organized in 2006 a massive policy of urban renewal, to provide new housing to the miners. But Tongmei faced financial difficulties in 2015 with the quick fall of coal prices.

In 2016, whereas an image of « good life » and « comfort » is mentioned when people talk about the general migration away from the coal-mining areas, the families of miners also had to deal with serious issues (delays in payment of their salaries, etc.). They liked their new places as a first experience of spacious, practical but also cheap living environment. They appreciated the “urban” tissue of shops, more convenient transportation, and feel more connected to the city. There was a general solid loyalty to the Tongmei Group.

In the context of the slowing down of the economy, they also start to fear a dark future in Datong. The new neighbourhood suffers from a bad reputation by the Datong inhabitants (dirty, unsafe), even by the people from Penghuqu themselves. The place is still far away from the city center, quite isolated because of a partial public transportation network. More over, it is a segregated space, all the inhabitants belonging to the lower categories of Tongmei's «*zhigong*» (workers and employees).

How do they react to the coal crisis now that they all live far from the mine? While the inhabitants reinvent their daily life practices in this new environment, they could lose their former abilities to organize collectively (which they had when they lived on the site of the mine) or find new opportunities of collective organizing. Moreover, the social boundaries of the area are now changing, since the residents of Penghuqu come from different coal mines and do not know their neighbours as deeply as before. Everyone has the feeling that this place is “in disorder” (*luan*).

**Discussion**

Questions were raised about the context of the coal mining situation and about the living conditions before and after the implementing of the urban renewal project.