THE LEARNING CITY

学习型城市

AN INNOVATIVE APPROACH FOR MUTUAL LEARNING OF SUSTAINABLE URBANIZATION BETWEEN CHINA AND GERMANY

Changzhou

Chongqing

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UNIVERSITÄT DUISBURG ESSEN *Open-Minded*

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SINO-GERMAN LEARNING CITY - INTERDISCIPLINARY WORKSHOP ON SUSTAINABLE URBAN DEVELOPMENT

中德“学习型城市”项目旨在推动中德伙伴城市相互交流学习, 共同推进可持续城市发展。项目为期两年，由德国墨卡托基金会资助，德国乌波塔尔研究所和能源基金会联合牵头。

项目甄选了两对姐妹城市—中国江苏省常州市与德国鲁尔工业区埃森市、中国重庆市与德国北威州首府杜塞尔多夫市：

• 第一届项目（2015年8月—2016年3月），在中国常州市和德国埃森市这一对中德友好城市的双方政府支持下，由中国东南大学联合德国埃森-杜伊斯堡大学联合指导。项目选取了常州市武进区作为研究对象，中德两国三十六位研究生围绕老街区改造、振兴苏南模式、江南水文化与城市发展等主题开展研究。

• 第二届项目（2016年3月—2016年11月），在中国重庆市和德国杜塞尔多夫市这一对中德友好城市的双方政府支持下，由中国重庆大学和德国柏林工业大学联合指导。项目选取了重庆市渝中区作为研究对象，中德两国三十四位研究生围绕遗产保护、绿色低碳技术、可持续发展理念等主题开展研究。

每一届项目由三部分活动组成：
• 工作坊：中德两国研究生在双方专家的指导下以城市联合教学工作坊的形式, 为中国伙伴城市探索可持续城市发展的新思路。

• 德国考察：中德两国研究生以及地方相关领导和专家受邀到德国伙伴城市及其周边地区, 考察城市发展的优秀实践。通过考察，学生把联合教学工坊成果与实践相结合。

• 利益相关方论坛：论坛上中德学生、专家以及城市相关机构共同讨论方案可行性，和中德城市未来合作的意义。

中德两国学生来自不同学科专业，面对中国城市管理的挑战，与当地利益相关方共同研究问题，探索解决方案，提出城市蓝图。第一届项目完成了水环境方案，为常州市武进区海绵城市建设贡献了新理念和新思路，获得了当地政府的认可。第二届项目完成了以重庆市旧城更新为背景的《可持续发展导向的城市更新指引》，提出了对重庆市更新规划具有前瞻性的策略和针对性的技术导则，对旧城发展有着重要的参考价值。项目帮助两国学生提升了可持续城市发展的能力，促进了两国城市间的社会、文化和经济的交流。同时，学习型城市项目认识到城市建设的复杂性，明确项目的核心是以跨学科教育来培育城市建设者。更重要的是，项目为中德学生们搭建了友谊桥梁。

尽管两国城市的发展存在各种差异，学习型城市项目促进了中德伙伴城市理解双方城市的发展以及面临的共同挑战，并为双方城市在可持续城市发展领域进一步合作奠定了良好的基础。
本报告介绍中德合作“学习型城市”项目及其成果。我们希望这些成果为城市领域内学术和专业的交流合作提供有益的启发。

01. INTRODUCTION

Today more than 50% of the Chinese population lives in urban areas. In the last decades, the unprecedented urbanization has largely contributed to economic development, wealth and personal prosperity. In Europe, urban areas accommodate more than 70% of its population. Cities are the engine of the member states' economies, generating 85% of Europe's GDP.

Despite wide differences in urban development processes and urban planning approaches, Europe and Chinese cities face similar challenges. The various economic activities in both European and Chinese cities are associated with energy and material consumption and thus high environmental impacts, ranging from increased greenhouse gas emissions and air pollution to resource depletion. Besides, both European and Chinese cities are facing various societal challenges, such as increasing inequalities, ageing societies, and migrant flows.

In the past decades, European cities have accumulated extensive experience in dealing with some of these urban challenges. While there are some cities in Europe that serve as worldwide references and good practice, most European cities still are on a pathway towards sustainable growth, and are confronted with existing and new challenges arising along the way. The Chinese government has proactively promoted "people-centered" and ecologically friendly urbanization and has made significant progress in recent years. Having gathered experience in the past and while seeking solutions for current and future challenges, both European and Chinese cities bring highly valuable expertise and know-how to mutual learning and cooperation on sustainable urban development. This requires well-designed processes that create spaces for enhancing mutual understanding of their common challenges and exploring cooperation on innovative solutions between cities in Europe and China. The Sino-German project "The Learning City - Interdisciplinary Studios for Sustainable Urban Development" is one endeavor to explore processes that facilitate mutual learning on sustainable urban development between two city partnerships in Germany and China: Essen and Changzhou, and Düsseldorf and Chongqing.

Additionally, interdisciplinary and trans-disciplinary approaches are necessary to improve our understanding of how various urban components interact with each other and to develop integrated strategies that address social, economic, cultural, and environmental sustainability in our urban areas. Against this background, the Learning City project brought together students from German and Chinese universities to explore innovative solutions towards concrete challenges in Chinese partner cities in an interdisciplinary team and a participatory setting.

In each city partnership, the Learning City project followed a three-step approach:

- **Urban Studio in China**: Students from China and Germany worked together for a period of three weeks to explore innovative solutions for identified challenges in the Chinese partner city with local stakeholders and German and Chinese academic experts.

- **Good Practice Tour to the German partner city**: Students from China and Germany as well as Chinese local stakeholders joined a one-week good practice tour to the German partner city (and region) to learn about their successful experiences related to the developed solutions in summer school and to have dialogue with German local stakeholders. The tour included a critical reflection and comparison considering different contexts, based on which the solutions developed in the Urban Studio were further improved.

- **Stakeholder Forum in the Chinese partner city**: During the stakeholder forum, the improved solutions were presented to stakeholders from both Chinese and German partner cities to stimulate discussions on their feasibility and its implications on cooperation between the two partner cities.

02. LEARNING CITIES: CHANGZHOU-ESSEN

The Learning City Changzhou-Essen subproject was closely linked to the ongoing city partnership of Changzhou and Essen. The subproject brought together 36 excellent students from Southeast University and German universities with multi-disciplinary professional backgrounds: urban planning, architecture and landscape architecture, urban design, historical urbanism, integrated urbanism and sustainable design, geography, sustainable urban technologies, business management, social and cultural anthropology and cultural education. Supervised by academic experts from Southeast University, the University of Duisburg-Essen, and Wuppertal Institute, the students gained understanding of the most urgent urban challenges in Wujin District of Changzhou and proposed innovative solutions.

Changzhou-Essen Partnership

Changzhou and Essen is one of the first 12 city partnerships within the framework of EU-China Urbanization Partnership Program. Furthermore, Jiangsu Province, where Changzhou is located, holds a partnership with North-Rhine Westphalia, where Essen is located. The city of Essen, with almost 600,000 inhabitants is located in the Ruhr region, which used to be Germany's major coal-mining region. As coal mining was successively depleted in the last decades, Essen has been at the center of an industrial transformation process. While the city still accommodates several industrial operations, the service sector has grown to be the second major pillar of Essen's economic structure. In recent years, the city administration undertook strong efforts to pursue sustainable urban development and to foster Essen's image as a green city. Essen was awarded as "Green Capital" in 2016.

Changzhou, which has more than three million inhabitants, is located in the prosperous Yangtze River Delta that generates as much as 20% of China's GDP. It has experienced a rapid economic growth and urban expansion over the last decades. The city has actively pursue sustainable urbanization and is facing various challenges, such as transforming its traditional industry, revitalizing its old town, and dealing with environmental pressure asso-ciated with its urbanization such as water pollution.
Wujin District in Changzhou was selected as the case study area in this subproject.

Wujin district is located on the South edge of Changzhou, an ancient, city on the Yangtze Delta Region with a population of 5 million inhabitants. The origin of Wujin is based on the historical Wu culture with 5,000 years of human civilization and over 2,700 years of history for the ancient city. Wujin is characterized by the variety of rivers and its social and environmental potential.

THE STUDIO IN CHANGZHOU AND NANJING

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During the urban studio, students worked on the following three topics, which were identified by the student groups and later confirmed by the stakeholders as acute challenges of the urbanization processes in Wujin District and highly relevant for urban development in Essen: industrial transformation areas, preservation and conservation processes in the old town, and water and urban development. In addition, the students also reconsidered the overall urban system in the district of Wujin.

The teams made an initial diagnosis of their respective areas based on participatory data collection methods with local residents and enterprises. The diagnosis was followed by proposals for strategic planning. Finally, actions and projects were proposed for achieving strategies and measures shared with local stakeholders.

OVERARCHING URBAN SYSTEM:
RETHINKING THE URBANIZATION PROCESS TOWARDS A BETTER LIFE

The students proposed two different approaches: “Think global – Act local” and “Small is beautiful” with the following main goals:

- Understanding the complex urban system of Wujin
- Developing strategies that provide solutions to the current challenges
- Reformulating the existing planning strategies by starting at the grassroots level
- Developing a cooperative strategy that involves the participation of multiple stakeholders to reach a balance between the top-down and bottom-up approach

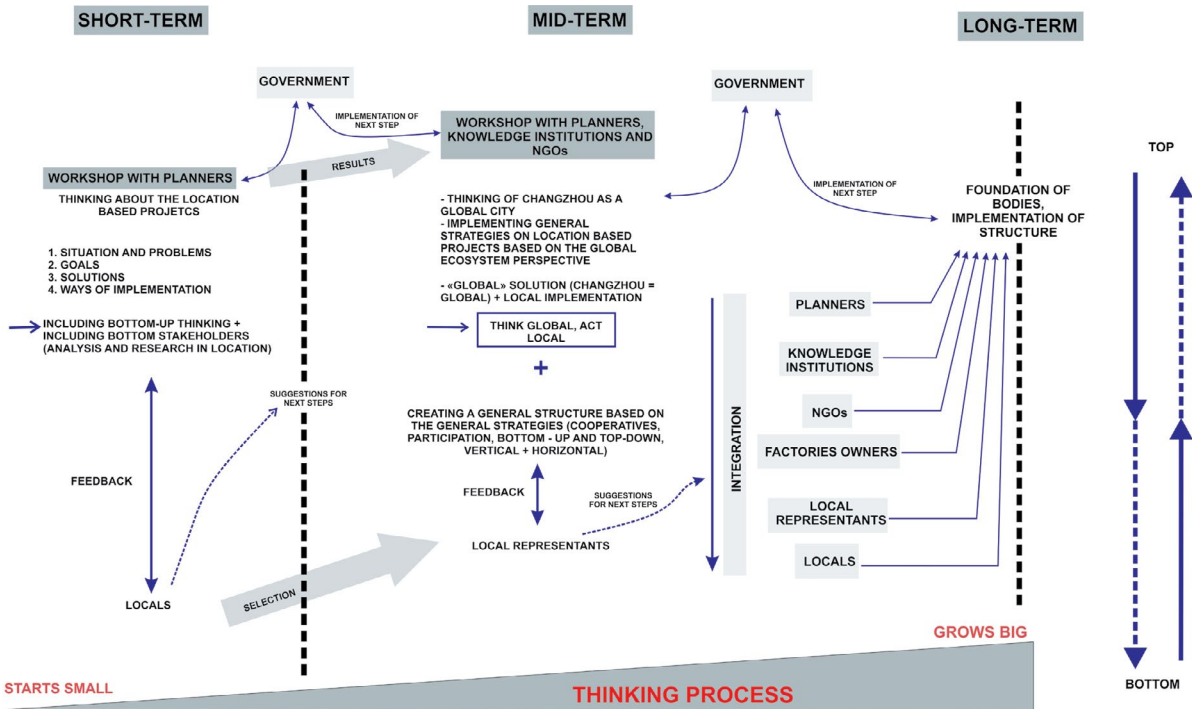

Figure 1. Strategy implementation on a timeline.
Source: Learning City. Narratives and Scenarios for Wujin District in Changzhou. Group: Overaching Urban System

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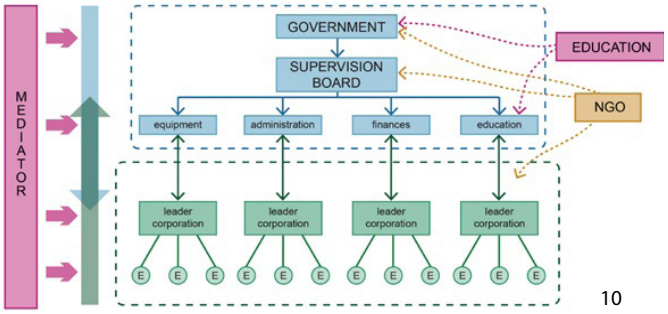
INDUSTRIAL TRANSFORMATION OF SUNAN ECONOMIC MODEL

Three interdisciplinary teams worked out different strategies addressing the industrial transformation process:

Past.Present.Future focused on the urban-based eco-social regional development mode and aimed to promote the upgrading and innovation of the factories by developing a set of strategies that increases land efficiency, industry clusters and mixed-use of land. Therefore, the group developed a participatory method on the industrial level, giving each stakeholder of the industries not only a voice, but also a choice in which they can select from the set of strategies (stay and upgrade, stay and cluster or reorganize space by replacement or rearrangement).



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Grow your City pursued the activation of vacant spaces and creation of public spaces by developing strategies for the implementation of productive and sustainable green urban landscapes in order to rethink the urban-rural duality. Here, strategies focused on the introduction of an urban food network at the neighborhood level that tackle current issues such as urban wastelands, lack of public spaces and pollution.


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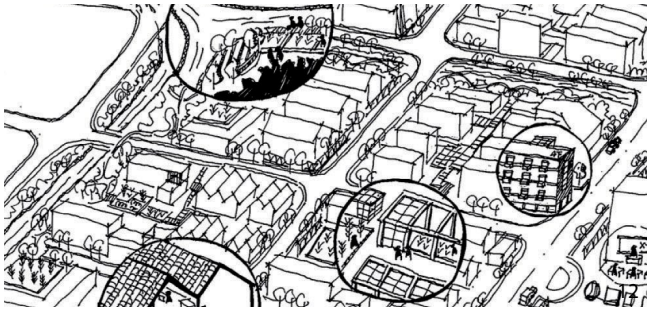
Sunan got Talent focused on the activation of local inhabitants and their talents by providing a suitable empowering framework, by initiating the first sparks of urban catalysts, and by spreading a new spirit of bottom-up reinvention and regeneration. The developed strategy is based on the development of spatial typologies that put new uses and combine different functions in existing spatial structures.



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PRESERVATION AND CONSERVATION PROCESS IN THE OLD TOWN

Two interdisciplinary teams developed strategies for the Hutong Old Town:

Keep the Machine Going focused on the complexity of the old town, which the team described as an old machine, analyzing the interrelations between the software and hardware, in which the former represents the citizens and the latter represents the physical structures. The main goal has been to repair and improve the old machine in order to keep it running, thus raising the awareness for the cultural heritage which entails and preserves the delicate social and spatial structures.

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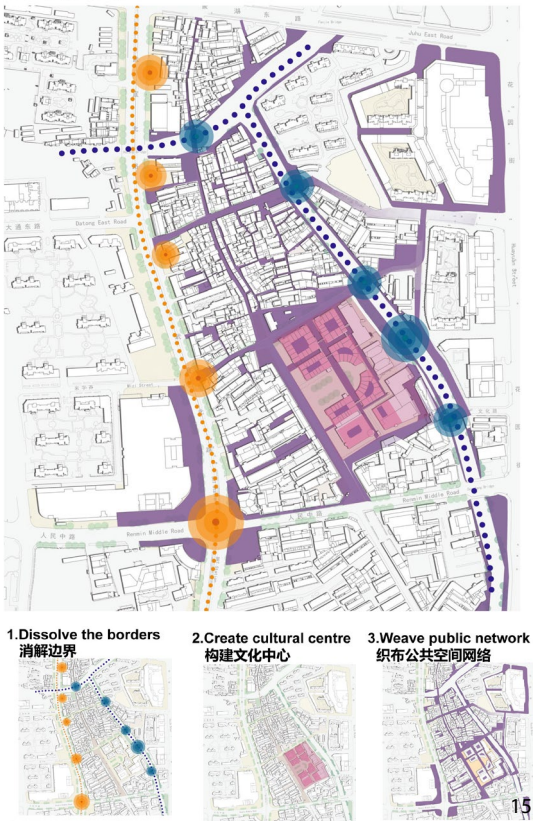
Connecting Neighborhoods – Inviting People focused on the re-activation of the district by identifying its potential and the integration of that potential in order to benefit from the old town and the surrounding areas, as well as to improve the quality of life in both districts.

Overall implementation strategy
总体实施策略



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URBAN WATER: OVERTAKE DYSTOPIA – RETHINKING THE WATER CULTURE

Urban Water has been identified as a topic with very high relevance. Four interdisciplinary teams worked together to develop a general water narrative based on a Dragon's metaphor: The ancient natural Chinese dragons are masters of water, grounds and wind that are waiting to be reactivated by engaging in dialog with modern dragons – infrastructure, urbanization process and climate change:

Overtake Dystopia focused on rethinking a new water culture as a tool for a sustainable development of Wujin District. By pursuing long, mid and short-term strategies, the group aimed to raise the awareness of water and to reintegrate it into the urban system, while functioning as an environmental model for the whole city.

Balancing Industry & Housing established a relation between industrial production and ecological agriculture on a community basis.

Water Purification & Fish Production developed environmental friendly concepts such as purifying water by implementing a aquaponic system and reactivating the local fish market.

Accessibility & Connections developed strategies connecting directly the local inhabitants with water, the different projects developed along the green corridor and the city. Here, an improved accessibility would lead to increased awareness.

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THE GOOD PRACTICE TOUR IN ESSEN AND THE SURROUNDING

The urban studio was followed by a good practice tour to Essen and its surrounding areas, where all students and local stakeholders from Changzhou had opportunities to visit examples related to the solutions developed by the students for Changzhou.

The core of the good practice tour was to visit ten examples of urban transformation in Essen and the Ruhr region:

- The former coal mine Zeche Zollverein that is now a world cultural heritage site in the city of Essen.
- The re-vitalized Emscher River which had been used as open sewer drain for waste water for more than one hundred years.
- Further former industrial sites which have been transformed into places for housing, offices, and/or leisure (the headquarters of ThyssenKrupp, the garden city Margarethenhöhe, the former coal mine Bonifacius Zeche, Phoenix lake, the adjoining district Hörde, and Landschaftspark in the city of Duisburg that had been an area of various steelworks).
- Pilot projects with regard to management and innovation of sustainable renewal solutions for city quarters such as green housing in the City of Bottrop, the Berne Park, the University of Applied Science Ruhr West, and the Vivawest future-house and surplus energy home.

In addition to visiting good practices, the good practice tour was kicked off at Essen city hall, where the Learning City project and innovative solutions developed by students were introduced to the mayor and other city departmental stakeholders from Essen. In addition, a dialogue workshop was held, with stakeholders from the city of Essen. During the workshop, Changzhou stakeholders introduced urban development in Wujin District and their insights gained from the good practice tour. Students presented their project solutions and reflected on how insights gained through the good practice tour could be integrated into their solutions, with a critical consideration of different contexts between China and Germany. For example, students recognised the inherent differences of industrial transformation between the Ruhr region and Changzhou and elaborated on solutions that consider both the Changzhou local situation and key factors of the Ruhr experience, such as increasing land efficiency and establishing industry clusters.

Together with the Essen urban planning bureau, students and Changzhou stakeholders also visited an ongoing project, Zeche Bonifacius, which is a former colliery located in the eastern part of Essen undergoing transformation. German students presented their analysis of the area and discussed their initial ideas for the transformation with the urban planning bureau in Essen.

INNOVATIVE IDEAS FOR INDUSTRIAL TRANSFORMATION IN ESSEN: CASE STUDY ZECHE BONIFACIUS

Following a systematic SWOT analysis, four conceptual ideas of transformation were presented:

Bonifacius Eco Site integrates Zeche Bonifacius into a cultural tour in Essen and the Ruhr region. The surroundings of the landmark can be restored as an eco-park, where environmentally friendly technologies are used to restore the brownfields and create a recreational space for the local community and tourists. The value as a cultural heritage for the Ruhr area would be enhanced through the design of the park and the walkability within the site.

Kray – Space Invaders carries out a playful sustainability approach that intends to strengthen the urban environment of the area. The approach follows the opposite of the usual top-down implementation. It supports the slow rediscovery of the space by local residents. Within the idea of a "Learning City", the urban space will be a classroom where "students" (locals) not only learn, but most importantly share their knowledge and imagination of the urban future. The ideas of the participants form the base for the future urban master plan.
A new productive landscape is created taking advantage of the old industrial area by redeveloping a sustainable industrial model within the city.

The DIY-City Bonifacius – A city built by the people, who use it. It contrasts a future vision for the site with the current reality of the area that is dominated by cars and closed surfaces, driven by profits and growth without any space for playing and playfulness. The future, however, would be exactly the opposite of today's reality: Zeche Bonifacius would be a playground for kids, with spaces for ateliers, an organic supermarket and do-it-yourself workshops. The goal is to create an identity and a connection with the area citizens live, work, and play in. Basic principles are: walkability, grassroots democracy, and diversity.

STAKEHOLDER FORUM IN CHANGZHOU

After the good practice tour, "Water and Urban Development" was determined as a topic to be further discussed and elaborated upon. The stakeholder forum in Changzhou aimed to present stakeholders from Changzhou and Essen with the improved solutions in the field of "Water and Urban Development" and to stimulate discussions on their feasibility and its implications on Changzhou-Essen cooperation. Changzhou stakeholders acknowledged that students' innovative solutions inspired their ongoing strategic planning of a sponge city. The discussion on "Water and Urban Development" is relevant for the cooperation between these two cities, as there was already interest of cooperation on the topic of wastewater treatment and water purification.

03. LEARNING CITIES: CHONGQING-DÜSSELDORF

The city partnership of Chongqing and Düsseldorf set the scene for the Learning City Chongqing-Düsseldorf subproject.

Chongqing-Düsseldorf Partnership

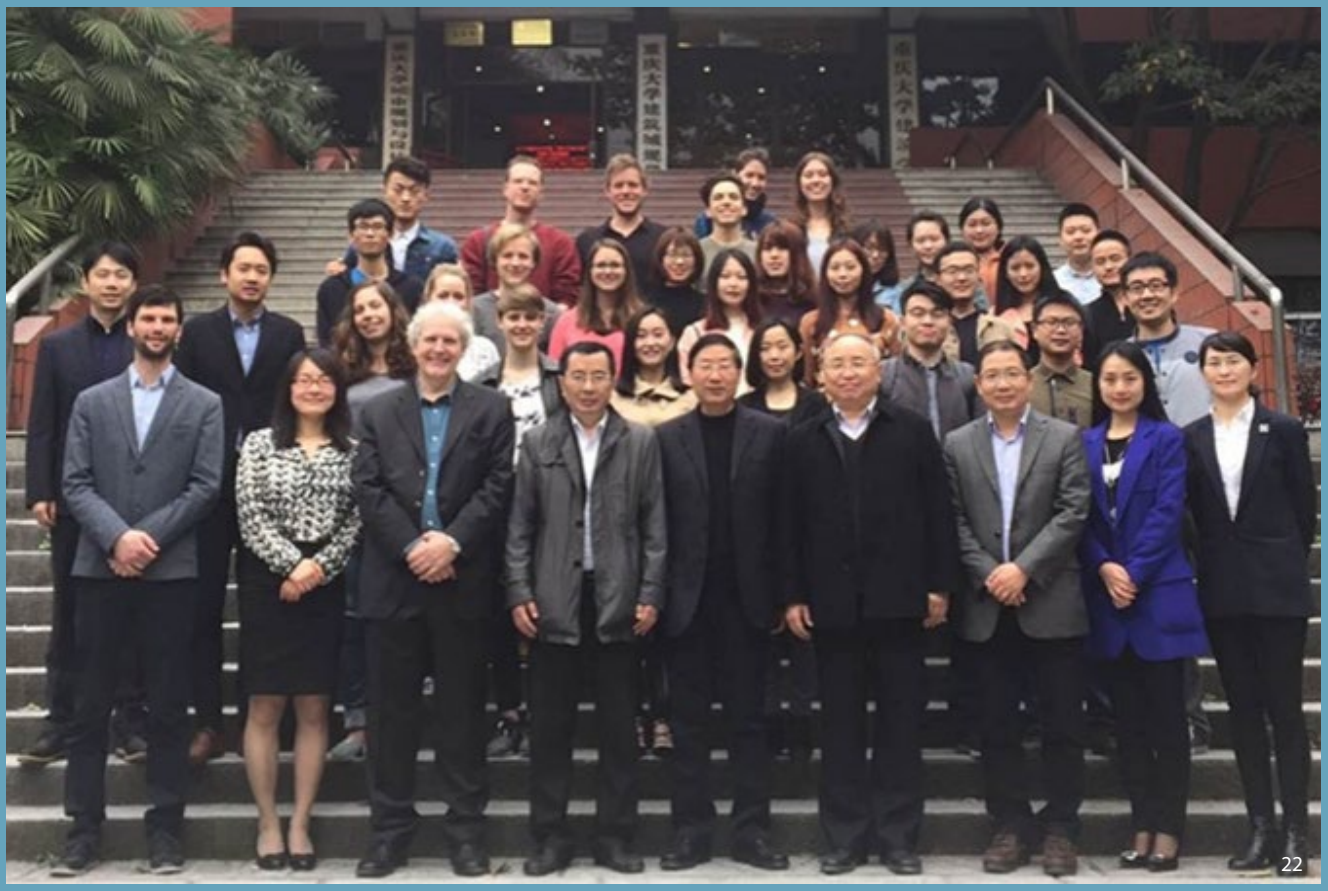
The partnership between Chongqing and Düsseldorf started in 2004, and has been built on various cultural and academic exchange activities.

Düsseldorf City is the economic centre of the German Rhine region and capital of North-Rhine Westphalia – Germany's most densely populated and highly industrialised state. Düsseldorf accommodates nearly 600,000 inhabitants and has gone through a fundamental economic transformation over the past four decades. With the new construction of the state parliament in the 1980s, the city decided to restructure the urban river-side and the city harbor next to it, as both were increasingly facing pressure. On one hand, since the original road located next to the Rhine River became one of the most traveled highways in the state, the increased traffic resulted in air pollution and noise. This called for a new inner-city traffic concept. On the other hand, the relocation of the trans-shipment station from the city harbor to logistic centers in the coastal area called for a new concept for Düsseldorf harbor development that supports job creation. Against that background, the city government constructed two road tunnels and created a promenade providing public space for pedestrians on top of it next to the Rhine River. In the old harbor area, modern office space that supports start-ups and the development of new industries was built. Today, both are landmarks of Düsseldorf and enjoy great popularity with citizens.

Chongqing is a famous industrial and cultural city in western China, and has a history of more than 3,000 years and a glorious revolutionary tradition. Chongqing is considered a mega-city, which contains the largest administrative region and holds the largest population (33 million) in China. Yuzhong district in Chongqing was selected as a focus of this subproject. The district is the only completely urbanized area in Chongqing accommodating 650,000 people. It is the "mother city", the financial, commercial, and cultural center and a tourist destination of Chongqing. Along with its development, the district is faced with various challenges, such as limited land for development, many old buildings with significant retrofit needs, impoverished physical conditions, and lack of infrastructure support. Given its culture and socio-economic values, more recently, the district government has been exploring a smart and integrated strategy of urban regeneration and started a series of pilots. Accordingly, sustainable urban regeneration was identified by governmental departments from both Yuzhong District and Düsseldorf as a highly relevant topic, and was the focus of this subproject.

Thirty-four excellent students with different disciplinary backgrounds from Chongqing University and German universities explored the topic of sustainable urban regeneration in Yuzhong District of Chongqing, under the supervision of academic experts from Chongqing University, Technical University of Berlin, and the Wuppertal Institute.

THE STUDIO IN CHONGQING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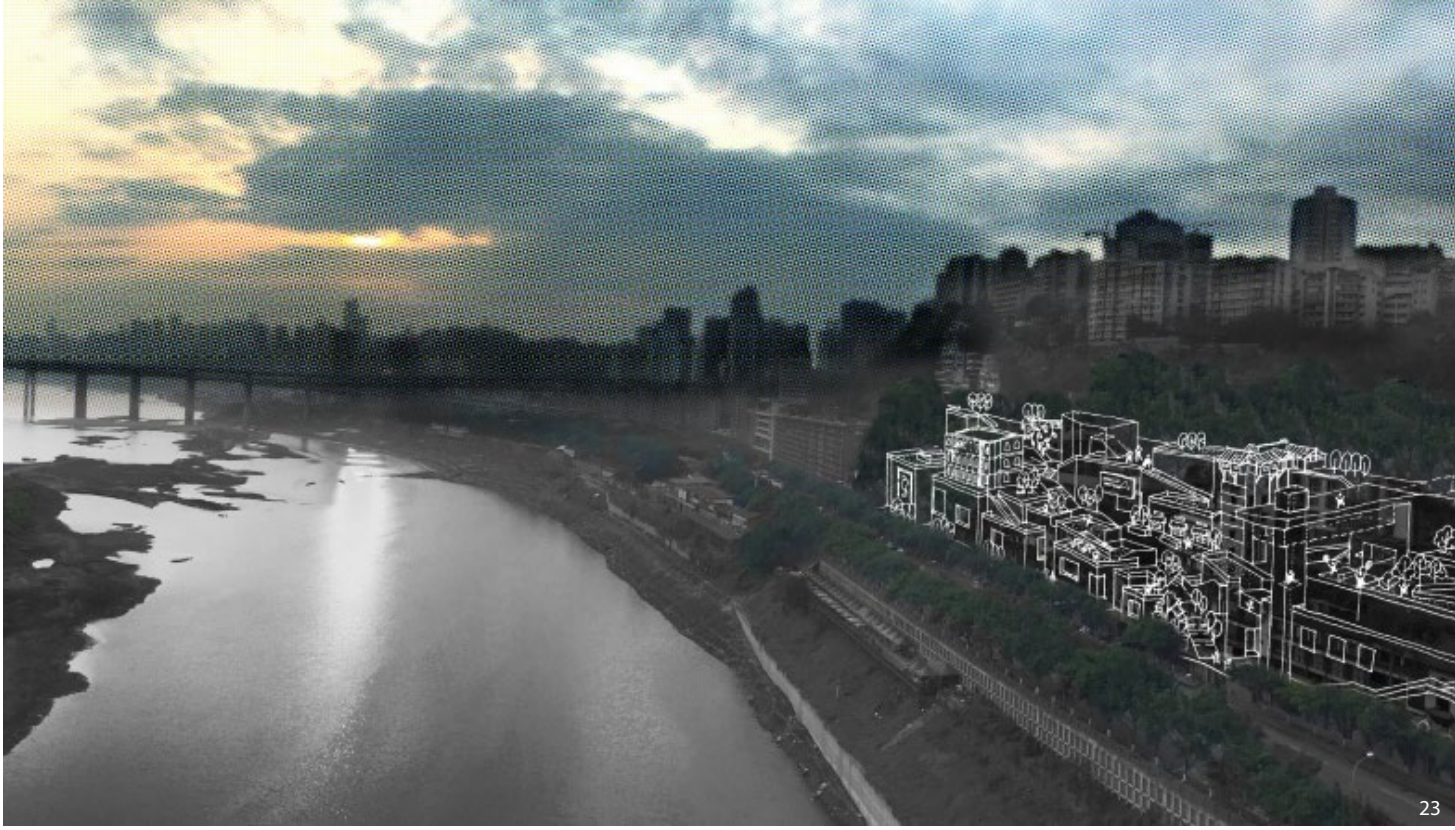
During the three-week lasting urban studio, the students worked with academic experts from Chinese and German universities, as well as local stakeholders, to systematically analyze the local challenges and opportunities of sustainable urban regeneration, and they developed innovative strategies and business plans for three sites selected by Yuzhong district government. The strategies address three key aspects of sustainable urban development: urban cultural heritage, low-carbon development, and connectivity and accessibility.

In order to develop transformative solutions for sustainable development that are tailored to local conditions and stakeholders' interests, the studio encouraged the learners to acquire knowledge-by-action and dialogue-based research and design. Complex issues such as climate change and globalization require students to be equipped with transformative knowledge. Thus, enabling individuals to view themselves as part of a transformation process can help them to identify themselves with knowledge content. The Issue-based Transformative Learning (IBTL) was implemented in the Chongqing studio, which includes skills such as exploring the sustainability issue space across local and global scales, actively engaging stakeholders, developing business plans for their innovative solutions, and communicating with visualization technologies. In addition, an evaluation guideline was developed to guide students' design of integrated solutions. The evaluation criteria include performance and mutual learning, feasibility, environmental sustainability, social sustainability, economic sustainability, and the ability of dealing with uncertainties.



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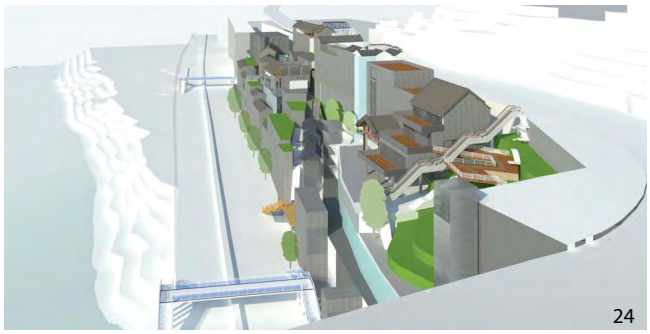
FEIJI MATOU

A small residential area located in the south of Yuzhong District close to the banks of the Yangtze River.
Steep topography, no public spaces, lack of basic infrastructure and accessibility for pedestrians

be aMAZED

• Sustainability Strategy: Tourism, local micro-economics and nature are considered in balance as a well-functioning sustainable system approach. New walkways and escalators will allow better accessibility and connectivity of the Feiji Matou area.

• Transformative Solution: Circular Economy framework that up-cycles different material flows within the community to create both unique architectural and commercial identities.



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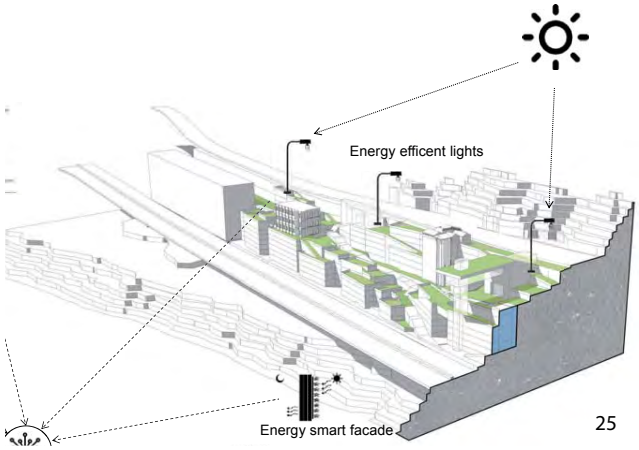
Linking Park

• Sustainability Strategy: Innovative spatial development of the central historic site into a vertical public park connecting the riverside with the city, which is enabled by innovative private commercial partnerships. Linking Park connects vertical neighborhoods with public spaces while using the steep topography with a terrace-linked surface. Existing paths are used to keep the naturally existing structure and enable a visual connection to the riverside.

• Transformative Solution: 3-D Zoning Monitoring Tool, a new regulatory tool for city planning department that can incorporate other semantic information to better optimize social-physical planning.



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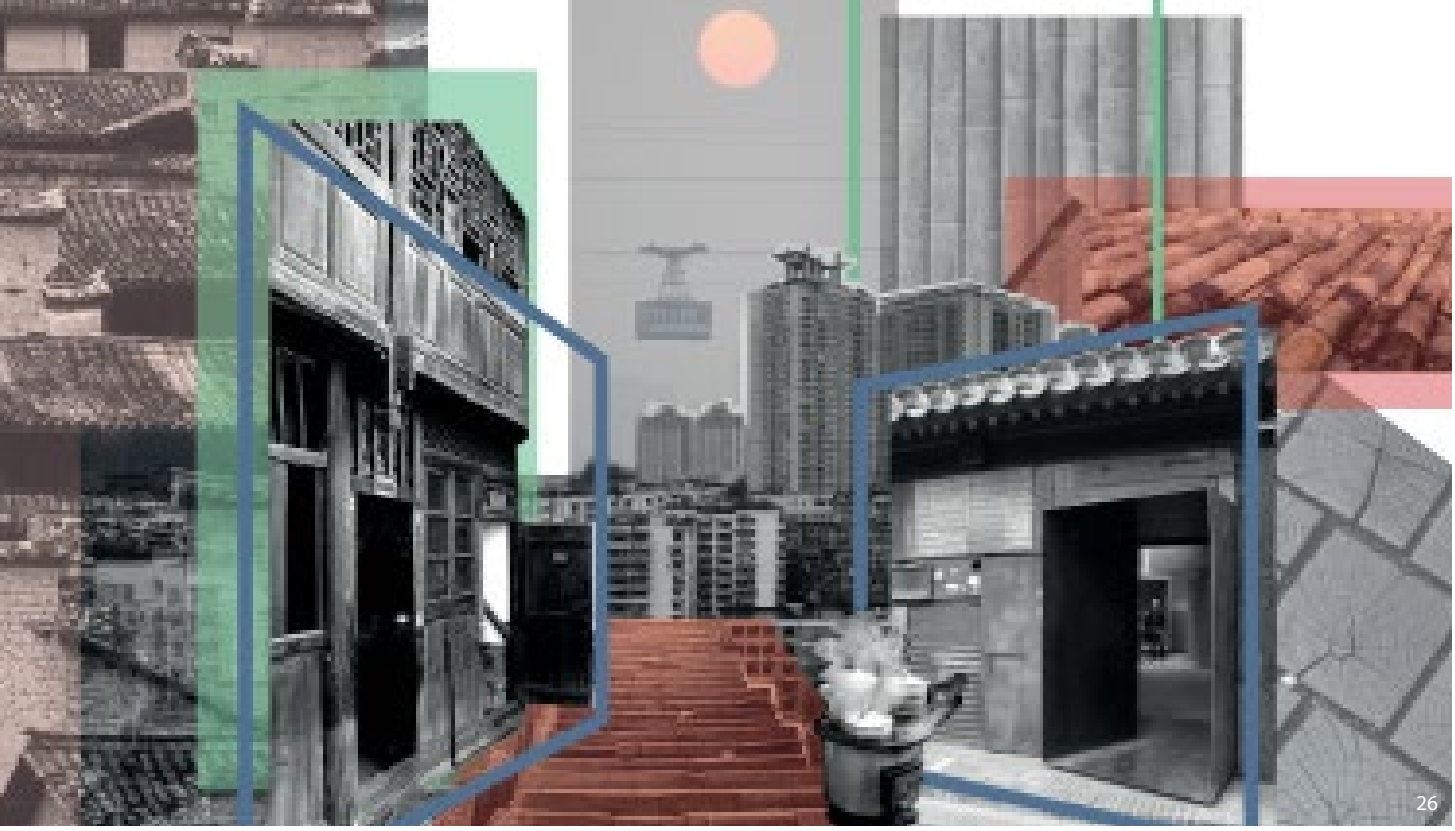

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LIZIBA

An urban village area located in the northwestern part of Yuzhong district close to the banks of the Jialing River. Divided by a busy road, and with steep topography that makes it difficult to reach public transport

Walktong

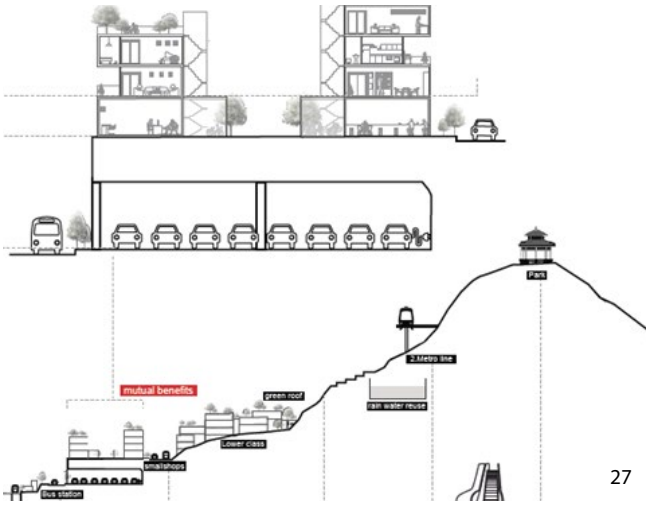
• Sustainability Strategy: A “Walking Community” design concept aims to improve spatial connectivity and walkability by decreasing car use and traffic, and providing access to services and goods in proximity to living spaces by supporting local economic and cultural development, and therefore preserve the human scale of the village. Consequently, the social mix in the area will develop in a unique way, with a new and open identity that follows a low-carbon pathway.

• Transformative Solution: Walkthrough Community Prototype, which prevents the physical segregation in the city.

Multi-modal City

• Sustainability Strategy: A Multi-modal Mobility Card for the old neighborhood can create and integrate several public or shared transportation options to increase both social and physical connectivity. Mixed-use building functions consider flexible space for working and living in newly constructed buildings on site, to help reduce individual travel distances that are normally covered on a daily basis.

• Transformative Solution: Multi-modal Mobility Card, Smart Sustainable Mobility for the old neighborhood that creates and integrates several public or shared transportation options to increase both social and physical connectivity.



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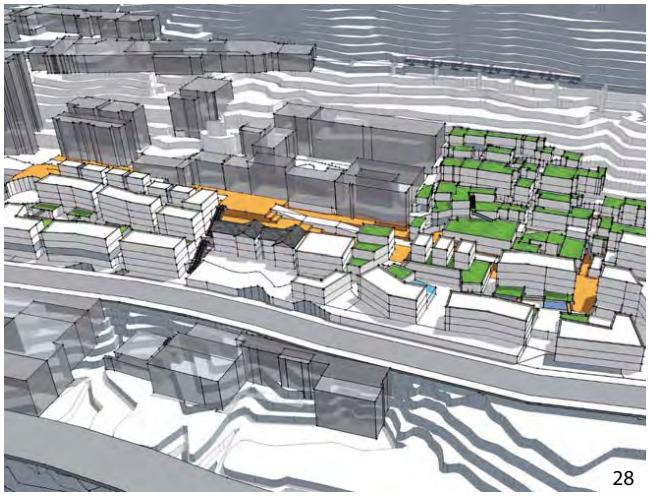

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SHANCHENGXIANG

A small-scaled and archaic urban area situated at the southern bank of the peninsula above the Yangtze river. One of the oldest parts in Chonqging, with small-scale old buildings, a portion of the buildings in bad condition, the area will possibly be demolished

The Neighourhood Commons of Shanchengxiang

• Sustainability Strategy: Concept for Chongqing's first pedestrian-only district saves the cultural heritage of Shanchengxiang. Contemporary architecture inspired by the layout of traditional Chinese hutongs, with socio-ecological projects including renewable energy and energy efficiency.
• Transformative Solution: Community Territorial Energy Fund drives and maintains the sustainable development of Shanchengxiang community with the profits generated from the value chain of local renewable energy.

Naturepolis Action Plan

• Sustainability Strategy: The plan introduces holistic building strategies that consider smart technologies and innovative materials, such as wood construction to modernize the old and small-scale living area and to take use of historical resources in the area.
• Transformative Solution: Social Education Program is developed to enhance local school curriculum and facilitate the re-development of the old neighborhood from early relocation process.


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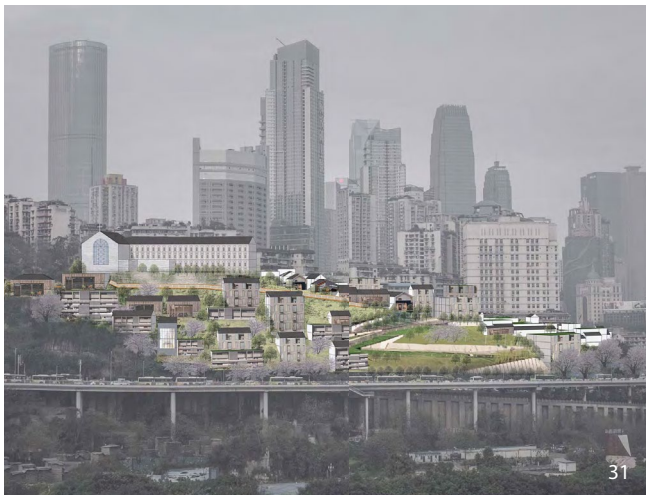
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THE GOOD PRACTICE TOUR TO DÜSSELDORF

After the urban studio, the students and stakeholders from Chongqing visited urban renewal good practices related to the solutions developed for Yuzhong District. These good practices, which were identified together with Düsseldorf government, included the following examples:

- The KöBogen, a recently constructed new landmark for the city center of Düsseldorf included a public space for citizens, designed by Daniel Liebeskind
- The Andreas Quartier, a historical building that has been used before as district court and which is now transformed to apartments directly in the heart of the city center
- The Urban Living Circle, a former office building of the company Thyssen Group, characterized by its curved shape, which is now also transformed to apartments (including social housing)
- The Old Town of Düsseldorf, an area characterized by a lot of bars and restaurants in a historical living environment
- The Rhine Promenade, that included the transformation of the urban riverside to a leisure area in the city center and a new traffic concept for one of Germany's most heavily driven city highways
- The museum Art in the Tunnel, a by-product of the renewal of the urban riverside that provides an exhibition space for young artists
- The power and heat plant Lausward, which is one of the most efficient gas power plants in Europe located next to the city center of Düsseldorf

Both students and Chongqing stakeholders were inspired by these good practices. Students critically reflected on what can be transferred to Chongqing, for instance, protecting architectural or cultural heritage and finding new functions for old buildings instead of simply tearing them down.

In addition, the good-practice tour also included a whole-day visit in Garath District. A neighborhood regeneration project called Garath 2.0 was being implemented there, which aims to revitalize this shrinking district with strong participation of local stakeholders. First, Düsseldorf urban planning department officials walked the students and Chongqing stakeholders through the area to present the challenges and pilot projects. Next, German students presented and discussed their innovative concepts for Garath 2.0 with Düsseldorf officials. Chongqing Urban Planning Department then introduced neighborhood renewal strategies in Chongqing and shared experiences of a low-carbon sustainable neighborhood pilot.

The good practice tour ended at the city hall of Düsseldorf, where the mayor of Düsseldorf welcomed students and stakeholders from China and strengthened the importance of the Learning City for their city partnership with Chongqing.


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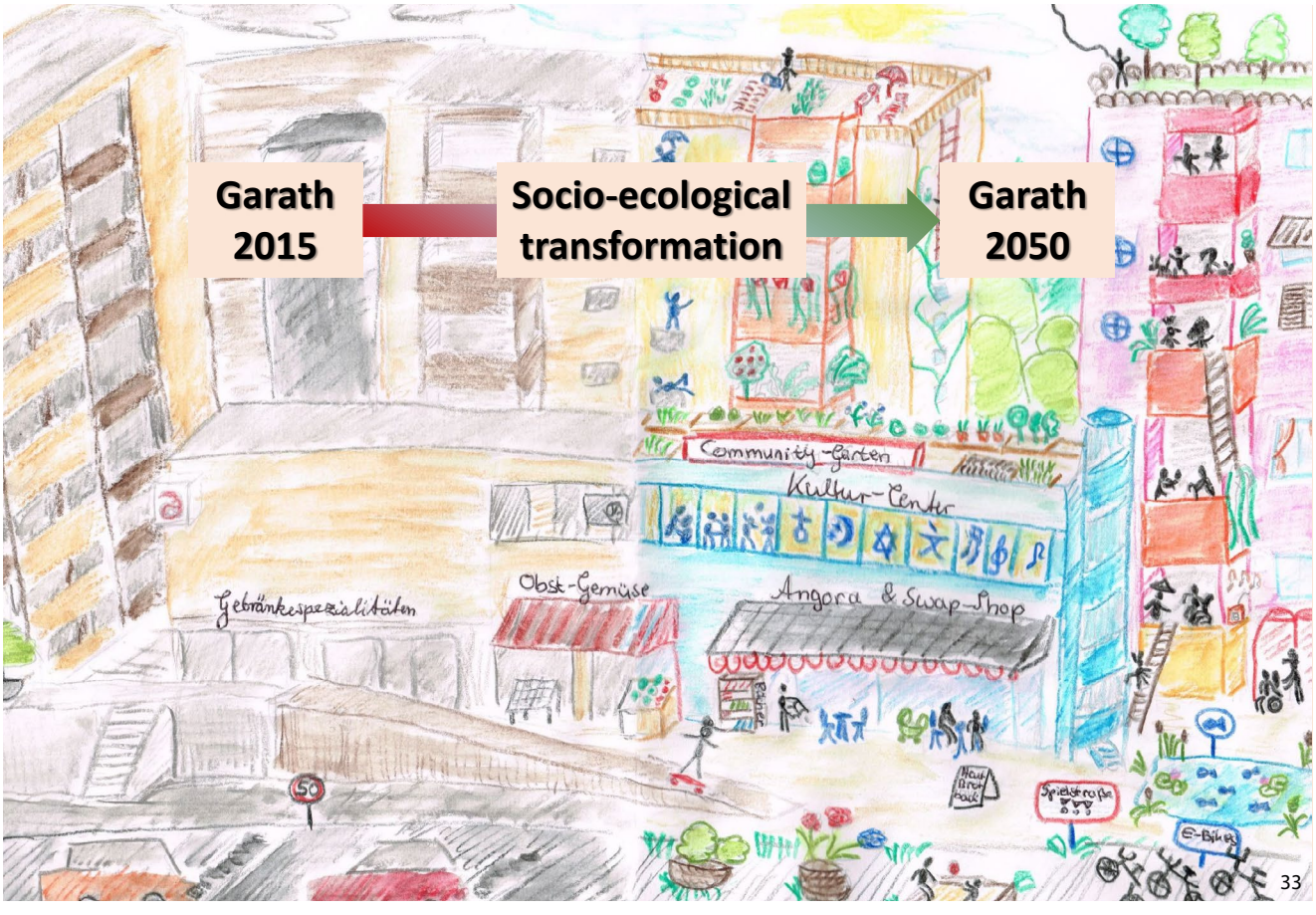
INNOVATIVE IDEAS FOR GARATH, DÜSSELDORF

Garath Socio-Ecological Restoration of an Aging New Town: The poor image of this neighborhood can be changed if the needs and wishes of community members are considered in current and future development projects. A selected place for socio-cultural exchange, inter-generational interaction, and support for innovative plans and ideas could become a hub for integration and growth. A sharing economy could be implemented, allowing low-income households to gain access to numerous goods. Community projects like urban gardens would foster responsibility and community spirit and offer new perspectives for young people. The use and production of renewable energy would support energy transition and the re-greening of the city would combat climate change issues.

Garath Empowering the Citizens proposes to deal with ecological and social issues while maximizing synergies between these two interrelated fields. A communal commons approach might provide an ideal framework, as it includes communities, a shared resource and a common set of rules regulating its use. Realising this concept in Garath would require a communal fund for energy transition and a citizen fund for sustainable development through donations. These would be used to build new power stations producing sustainable electricity or to finance energy efficient projects, thus supporting energy transition and stimulating the local economy at the same time.



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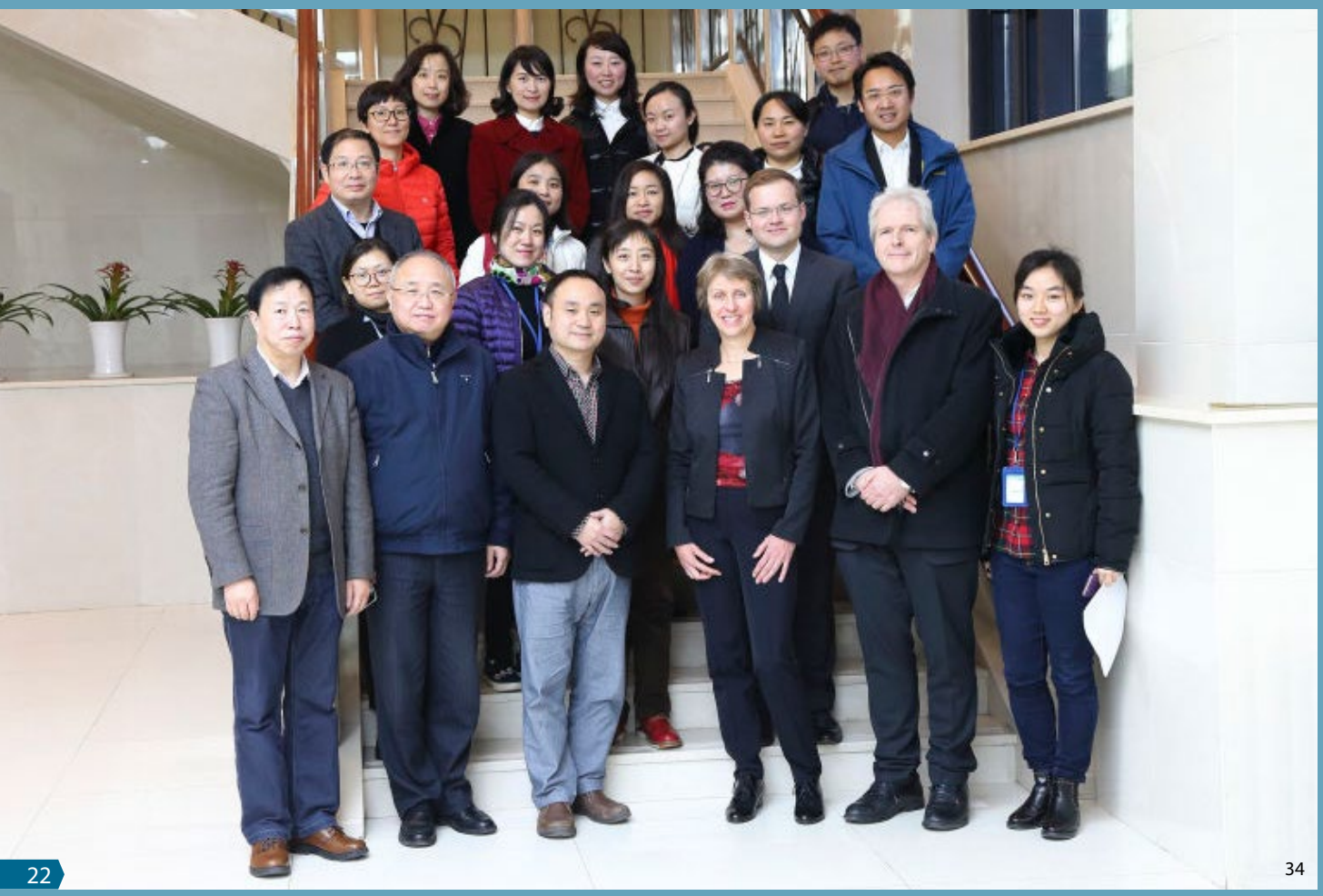
STAKEHOLDER FORUM IN CHONGQING

A final stakeholder forum took place in Chongqing, which drew attention from both city governments and was arranged as a key program in the Düsseldorf mayor's visit to Chongqing. Aside from students and academic experts from China and Germany, participants also included governmental stakeholders from both cities, local NGOs and enterprises from Chongqing, and German enterprises. At the forum, students presented compiled sustainable urban renewal guidance based on the solutions they developed and the good practice tour insights, and received positive feedbacks from local stakeholders. In addition, both Chongqing and Düsseldorf urban planning departments presented and discussed about their on-going strategies and pilots of urban renewal to enhance mutual understanding on this issue.



04. LEARNING IN LEARNING CITY

THE IMPORTANCE OF INTERDISCIPLINARY AND TRANS-DISCIPLINARY APPROACHES

The Learning City project works as an invitation to integrate interdisciplinary and trans-disciplinary approaches into the urban planning education in China.

Recognising the Complexity of the Urban System

As the first step during the urban studios, students gained an understanding of the dynamics of the urban system, interrelations of its various components and actors, and unpredictability of urban planning.

Interdisciplinary Approach

Dealing with complexity requires an interdisciplinary approach that effectively combines expertise of various urban-related disciplines. During the urban studio, the group work revealed the different perspectives held by Chinese and German students from different disciplines. These various disciplines offer different approaches of analysing urban dynamics. The students learned from each other and complemented the process with their diverse backgrounds and experiences. This was the backbone of developing holistic and sustainable solutions in each city partnership project. Such an interdisciplinary team, especially, given the short time frame of the urban studios, needs a competent team leader to create synergies and cooperation among the team members.

Trans-disciplinary Approach

A trans-disciplinary approach is not only the key for ensuring societal relevance of research, but also acknowledges the value of all kinds of knowledge. This requires collaboration between interdisciplinary research teams and various stakeholders. In the Learning City project, stakeholders, including governmental staff, NGOs, and enterprises, were invited during the urban studios and the stakeholder fora to share their understanding of the issues at hand and to give feedback to the innovative solutions developed by the students. Their participation enhanced students' understanding about urban challenges and complexity as well as the local needs. Eliciting knowledge of stakeholders requires students to be equipped with a new set of methods, such as direct dialog with local inhabitants, group interviews, direct observations, focus groups, walking tours, videos to report daily activities, drawing sketches and photographic materials. These methods were partly applied by students during the urban studios, with the supervision of Chinese and German academic experts. Through their involvement, stakeholders gained an opportunity to learn about the latest concepts and cutting-edge solutions of specific topics.

MUTUAL LEARNING ON SUSTAINABLE DEVELOPMENT BETWEEN GERMANY AND CHINA

Mutual Learning between German and Chinese young Professionals

The Learning City project enhanced mutual learning between master students from German and Chinese universities. Various conceptual topics of urban systems were discussed at the beginning of the urban studios, which are common for both sides but with different approaches, given different theoretical understanding and practical experiences of students at German and Chinese universities as well as different urban planning systems in both countries. Through lectures of urban planning systems in China and field studies in the Chinese partner cities, German students gained an in-depth understanding of urban issues in China.

During the good practice tours in the German partner cities, Chinese students visited various sites and had exchanges with German experts and practitioners to learn

about how specific challenges are addressed in German cities. Students were guided to critically consider under which conditions (such as socio-economic, cultural, political, and historical context) these good practices have been implemented and whether and how specific good practices can be transferred to China. The goal of this reflection is for students to understand the success factors of good practice examples and how to incorporate the key factors of the globally circulated model into the Chinese context.

In addition to mutual learning about urban development, students also developed an understanding for different cultural backgrounds and thus strengthened their intercultural skills.

These students are future professionals in the field of urban development in both countries. Through the Learning City project, they understood different ways to approach urban dynamics in the Chinese and German urban context. Such a mutual understanding serves as an important basis for future collaboration on urban development between China and Germany.

Mutual Learning between German and Chinese Cities

The Learning City project acknowledged the value of mutual learning about urban development and sustainable urbanisation between Chinese and German cities, rather than the conventional one-way knowledge transfer from Europe to China. The two city partnerships in the project provided a framework, where such mutual learning can take place.

Identifying Common Interests and Concrete Fields of Actions

At the beginning of each city partnership project, the project team identified the specific fields of urban development, which are of common interest to both cities. The selection of these fields was based on the following two criteria: a) they are at the top of the urban development agenda in the Chinese partner cities; b) the German partner cities also perceived them as key challenges of their urban development and have already accumulated some experience. Based on these criteria, urban water, transformation of industrial areas, and urban renewal were selected as focus areas. During the urban studios, students developed innovative solutions towards the challenges in these fields and discussed them with local stakeholders in Chinese partner cities. The good practice tour in German partner cities enabled students and Chinese stakeholders to understand what kind of challenges in these fields the German partner cities and local/regional enterprises were facing and how they have dealt with them. The tour included not only visits of good practices but also exploration of on-going projects where these challenges are manifested. Through a dialogue workshop during the tour, German stakeholders also gained an understanding of the challenges in specific fields faced by Chinese partner cities and potential innovative solutions. Finally, German stakeholders were invited to the stakeholder forum hosted in Chinese partner cities, where students presented the improved solutions based on their learning from the good practice tour in Germany and they had real experiences of these challenges through excursions and dialogues with local practitioners. During both the good practice tour and stakeholder forum, the Learning City project also facilitated dialogues between municipal planning departments from both cities to learn about each others' practices. These various types of exchanges throughout the three phases in each project enhanced the mutual understanding of specific common challenges between the two partner cities, which serves as a foundation for further collaboration.

Combining Top-down Commitment and Bottom-up Initiatives

Top-down political commitment is essential for mutual learning on sustainable urban development between the partner cities. In Changzhou and Essen, well-functioning governmental-backed institutional structures are established for promoting collaboration on innovation and various environmental issues. However, top-down commitment alone is not sufficient. It needs to be complemented by bottom-up initiatives of enterprises and NGOs as well as academic projects to generate a fundamental understanding of urban transformation by academic sectors. The Learning City project engaged local enterprises and NGOs during both the urban studios and stakeholder fora in order to raise their awareness of new concepts and innovative solutions and elicit their knowledge about the issues at hand. The Learning City project mainly focused on the stage of raising awareness and stimulating initial discussion about innovative solutions for sustainable urbanisation. To facilitate collaboration between these partner cities and to implement concrete follow-up projects, a well-designed mechanism that involves potential German and local enterprises and organisations from an earlier stage and a well-functioning institutional structure facilitating collaboration in both partner cities needs to be established.

05. CONCLUSION

The Learning City project is among various endeavours of facilitating cooperation between cities in Europe and China to pursue sustainable urban development. It proves that, despite various differences in urban development processes in Europe and China, there is a space of mutual learning and cooperation to address their similar challenges. Thus, as a first step, common concrete challenges need to be identified through, for instance, academic projects, or facilitated dialogues between cities. Second, mutual understanding on the identified challenges is essential for further cooperation. Creating dialogues among city stakeholders, where specific challenges of both cities were presented and discussed, and organising mutual visits of stakeholders between cities helps to enhance mutual understanding on their common challenges. The Learning City created space for exploring solutions to these identified challenges with local stakeholders in Chinese partner cities. At the same time, the project involved German partner cities through co-hosting good practice tours related to the explored solutions and inviting German city stakeholders to the fora in Chinese partner cities. The processes of exploring solutions towards concrete challenges and the continuous engagement of stakeholders from both partner cities throughout the process provide tangible city partnerships for sustainable urban development, which is key for their mutual learning and cooperation.

On the other hand, the Learning City project acknowledges the complexity of the urban system. Thus, educating future urban planners to work in an interdisciplinary and trans-disciplinary manner is at the core of the project. Besides, mutual learning on urban planning approaches and urban development in each other's countries among Chinese and German future planners paves the way for more effective collaboration on sustainable urban development between the two countries in future.

LEARNING CITY PUBLICATIONS

Project Brochure:
The Learning City - An Innovative Approach for Mutual Learning of Sustainable Urbanization between China and Germany
It summarizes core processes and outcomes of the Learning City project and key insights for learning sustainable urbanization between China and Germany.

Authors:
Energy Foundation: Yu Zhang
Wuppertal Institute for Climate, Environment and Energy: Thomas Fink and Chun Xia-Bauer
University of Duisburg-Essen, Institute of City Planning and Urban Design (ISS): J. Alexander Schmidt and Gloria Gaviria
School of Architecture at Southeast University in Nanjing (SEU-Arch): Hong Jiang and Ming Yin
Technical Unversity of Berlin, CHORA city & energy: Raoul Bunschoten and Ying-Chin Deng
University of Chongqing: Ling Huang and Miao Xu
Layout: Gloria Gaviria
Edition: Berlin, Germany, March 2017
Download Brochure: https://wupperinst.org/en/p/wi/p/s/pd/526/

Learning Cities: Changzhou-Essen
Studio Report: **The Learning City. Narratives and Scenarios for Wujin District in Changzhou**
This is a detailed report that presents students' innovative solutions developed for Wujin District in Changzhou.

Authors: J. Alexander Schmidt, Gloria Gaviria and Franziska Kalbrenner
Institution: Institute of City Planning and Urban Design (ISS), University of Duisburg-Essen
Profreading English: Elisabeth Hagopian
Translation Chinese: Keru Feng
Layout: Mariana da Cunha Oliveira Santos
Edition: Essen, Germany, May 2016
Download Brochure: https://www.uni-due.de/imperia/md/content/staedtebau/learning_city_project.pdf

Research: **Low-Carbon Indicator System-Sino (LCISS) - an Application-Oriented Tool for the Development of the Low Carbon City.**
The contribution of Dr. Yuanyuan Zhang (Duisburg-Essen University) on low carbon indicator system based on her PhD research addresses a particular need of local stakeholders identified in the project, that is, how to operationalize the sustainability concept in planning.

Author: Yuanyuan Zhang
Institution: Institute of City Planning and Urban Design (ISS), University of Duisburg-Essen
Profreading English: Elisabeth Hagopian
Edition: Berlin, Germany, April 2017
Download Brochure: Research: https://www.uni-due.de/imperia/md/content/staedtebau/the_low-carbon_indicator_system-sino__lciss__an_application-oriented_tool_for_the_development_of_the_low_carbon_city.pdf

Lost in Translation? Sustainable Urban Imaginaries: Changzhou Scenario
Keru Feng (Duisburg-Essen University) conducted six interviews with Chinese and German professional participants of the Changzhou-Essen project to understand the transferring of sustainability urban imaginaries.

Author: Keru Feng
Institution: Institute of City Planning and Urban Design (ISS), University of Duisburg-Essen
Edition: Berlin, Germany, April 2017
Download Brochure: https://www.uni-due.de/imperia/md/content/staedtebau/lost_in_translation___sustainable_urban_imaginaries-_changzhou_scenario.pdf

Learning Cities: Chongqing-Düsseldorf
Studio Report: **Learning with Chongqing**
This is a detailed report that presents students' innovative solutions developed for Yuzhong District in Chongqing.

Authors: All studio participants, supported by Ying-Chih Deng and Tomaz Pipan
Institution: Technical University of Berlin and Chongqing University
Download Brochure: https://storybuilder.jumpstart.ge/en/author/reporting-urban-issues_tu-berlin-institute-for-sustainable-planning_ying-chih-deng

Sustainable Urban Regeneration Guide
This Guide was developed by students from both Chinese and German universities, based on the solutions developed in the studio and insights gained from their good practice in Düsseldorf.

Authors: All participating students, Ling Huang, Miau Xu, Heping Li.
Institution: Chongqing University
Edition: Chonqging, China, March 2017
Download Brochure: https://wupperinst.org/en/p/wi/p/s/pd/526/

Research: **Fostering Climate-Friendly Neighbourhood Regeneration in Düsseldorf-Garath**
This study was conducted by the Wuppertal Institute to explore the challenges and potential solutions for integrating climate mitigation issues into neighbourhood regeneration in Düsseldorf-Garath.

Authors: Thomas Adisorn, Ralf Schüle and Chun Xia-Bauer
Institution: Wuppertal Institute for Climate, Environment and Energy
Edition: Wuppertal, Germany, March 2017
Download Brochure: https://wupperinst.org/en/p/wi/p/s/pd/526/

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Group Changzhou - Essen

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Group Chongqing - Düsseldorf

Authors

Coordinating Partners

Energy Foundation and Wuppertal Institute for Climate, Environment and Energy.

Academic Partners

Changzhou - Essen: University of Duisburg-Essen, Institute of City Planning and Urban Design (ISS) and School of Architecture at Southeast University in Nanjing (SEU-Arch)
Chongqing - Düsseldorf: Technical Unversity of Berlin, CHORA city & energy and University of Chongqing

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Based on Studio Report: Learning with Chongqing: 02, 04, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 34, 36
Based on Studio Report The Learning City. Narratives and Scenarios for Wujin District in Changzhou:
Group Connecting Neighborhoods – Inviting People: 15
Group Urban Water: Overtake Dystopia: 17
Group Past.Present.Future: 10
Group Sunnan Got Talent!: 12
Gloria Gaviria: 01, 03, 05, 09, 16, 20, 35
Alexander Schmidt: 06, 08,13
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Verena Röll: 11,19
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Jiang Wei: 18
SEU: 07

Edition

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