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Conference Documentation

Sino-German Dialogue Forum on Sustainable Urban Development

Infrastructure Solutions in Key Urban Sectors

22 September 2015, Beijing, China

Imprint

Published by
KfW Group
KfW Development Bank

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Introduction

The Sino-German Dialogue Forum on Sustainable Urban Development: Infrastructure Solutions in Key Urban Sectors took place in Beijing, China on 22 September 2015. The conference was co-hosted by the German Federal Ministry for Economic Cooperation and Development (BMZ) and the Chinese Ministry of Finance (MoF), and implemented by KfW Development Bank. In addition, the German Federal Ministry of Education and Research, the German Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) provided valuable contributions and support.

The Dialogue Forum highlighted the long-standing cooperation between the two countries and brought together more than 250 prominent Chinese and German policymakers with professionals, researchers, and financial experts to share and discuss the innovative concepts, programs and solutions currently emerging from Sino-German cooperation on sustainable urban development. Major themes included the opportunities and challenges associated with sustainable urban development, public transportation, wastewater and solid waste management in cities. Furthermore, the conference explored financing options for sustainable urban infrastructure, and examples of Chinese and German best practice and detailed case studies were provided throughout. Based on these discussions, the conference further examined the possibilities for intensifying, enhancing, and expanding Sino-German cooperation and provided opportunities to situate Sino-German cooperation on sustainable urban development in the broader international context.

This report summarises the speeches, presentations, and discussions from all conference sessions.

Dr Frank Rückert, Head of the Economic Department at the Embassy of the Federal Republic of Germany in Beijing

Mr Cheng Zhijun, Deputy Director General at the Ministry of Finance of the People's Republic of China

Dr Peter Failer, Director General at the Federal Ministry of Economic Cooperation and Development, Germany

Ms Song Qiuling, Deputy Director General at the Ministry of Finance of the People's Republic of China

Addressing Global and Local Challenges of Urbanisation

Welcoming Remarks and Opening Speeches

The conference opened with welcoming remarks and opening speeches by distinguished speakers from Germany and China, including Dr Frank Rückert, Head of the Economic Department at the Embassy of the Federal Republic of Germany in Beijing, Mr Cheng Zhijun, Deputy Director General at the Ministry of Finance of the People's Republic of China, Dr Peter Failer, Director General at the Federal Ministry of Economic Cooperation and Development, Germany, Ms Song Qiuling, Deputy Director General at the Ministry of Finance of the People's Republic of China, and Ms Vera Rodenhoff, Head of Division at the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, Germany.

In their presentations, speakers emphasised that sustainable urban development is one of the key global challenges of our time. Today, more than half of the earth's population lives in cities; this number is expected to grow to 75 per cent by 2050. Cities also consume about two thirds of the world's energy and account for 70 per cent of global greenhouse gas emissions. In light of rapid rural-urban migration and a changing climate – two closely interlinked phenomena – managing urbanisation while stabilising global temperatures at about two degrees Celsius above pre-industrial levels is an urgent matter. The presentations identified four key topics for future bilateral cooperation. These include enhanced cooperation on global issues, the provision of adequate urban infrastructure, financing infrastructure in cities, and promoting holistic and integrated urban planning approaches.

Firstly, in light of the upcoming Habitat III conference, speakers called for **expanding bilateral cooperation and dialogue on global sustainable urban development issues.** The need for sustainable urban development and ambitious climate targets has been widely recognised at the global level, and strategies for implementation of these targets are currently being debated at the UNFCCC and in the lead-up to Habitat III. In particular, the upcoming Habitat III conference in 2016, which should result in the New Urban Agenda document, will be crucial to implementing internationally agreed climate and sustainable development goals. In recent months, the German government has been lobbying for a dedicated urban sustainable development goal and is now actively involved in Habitat III. China is an important partner in this process and opportunities for enhanced bilateral cooperation on global issues need to be further explored.

Ms Vera Rodenhoff, Head of Division at the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, Germany

Secondly, **providing adequate urban infrastructure** to meet growing demand while addressing issues such as resource efficiency, climate change mitigation, environmental protection, and social inclusion was highlighted as essential to capitalising on cities' potential for economic growth and to improve overall social wellbeing. In the context of rising demand for infrastructure development, the bilateral exchange of experiences and knowledge has gained in importance. In the last two-and-a-half decades of Sino-German cooperation, urban infrastructure has always been a key priority.[1] In the future, this will continue to be the case; however, more emphasis will be placed on improving the quality of operations and scaling up successful pilot projects.

Thirdly, **financing infrastructure in cities** has been identified as another key challenge. Cities often face tight budgets and lack sufficient public finances to meet growing infrastructural demand. National and international development banks such as KfW and the private sector will play an increasingly important role in closing this funding gap. Moreover, initiatives such as the Cities Development Initiative for Asia (CDIA), which was co-founded by the German government, support cities in building capacities and connecting them with potential funding sources. Germany and China started their financial cooperation in 1985. In response to the increasing importance of bilateral exchange, the focus on government loans and more recently on promotional loans has grown in recent years. Through this cooperation, numerous infrastructure projects were funded, including water supply, wastewater and transport projects.

Fourthly, **holistic and integrated approaches** were considered important to sustainable urban development. In order to address the multiple challenges emerging from urbanisation, such as building energy-efficient housing and providing sustainable transport while maintaining social cohesion and economic development, China adopted the New Type Urbanisation Plan (2014-2020). The plan not only covers climate, energy, and environmental issues, but also focuses on social and cultural dynamics. When it comes to energy and climate, Germany has numerous measures and policies in place to reach the ambitious targets of reducing greenhouse gas emissions by 40% compared to 1990 levels by 2020 and achieving a carbon-neutral building stock by 2050. The Chinese government has repeatedly stated its interest in German ideas, knowhow, and technology in these fields in order to assist in its urbanisation strategy.

[1] Almost 50% of the loans were being used for wastewater and solid waste management, heating and transportation projects.

Key Note Speech

The welcoming remarks and opening speeches were then followed by a key note speech, provided by Ms Yao Dongmei, Director at OMA, in which she argued that integrated approaches also have a spatial dimension. **Cities and their outskirts** are inextricably linked and should be considered as such to allow for sustainable solutions. Taking a balanced approach to development that strengthens rural areas while managing cities was highlighted as a key precondition to achieving true sustainable urbanisation. While planning policies are needed to overcome the artificial decoupling of cities and their outskirts, further emphasis should be placed on developing smaller cities and improving the connection between bigger and smaller cities and thus easing commutes.

In the context of unprecedented urbanisation and major challenges for sustainable urban development, bilateral cooperation has become crucial to mutual learning and innovation. In this context, the Sino-German Dialogue Forum on Sustainable Urban Development: Infrastructure Solutions in Key Urban Sectors provided a timely platform to take stock of current Sino-German cooperation programmes and projects in this area and to examine the possibilities for intensifying this cooperation in future. Over five sessions, the conference focused on integrated urban planning approaches to sustainable urban development, financing urban infrastructure, reshaping mobility patterns through innovative transport planning, promoting sustainable wastewater and solid waste management, and current and future challenges in sustainable urban development.

Ms Yao Dongmei, Director at OMA

Mr He Xiaojin, Vice-Mayor of the City of Yixing

Ms Gabriele Mallasch, Climate Protection Manager at the City of Dortmund

Dr Xu Zhenqiang, Institute Director in Chief at the Chinese Society for Urban Studies

Mr Müslüm Yakisan, Division Head at Siemens

Integrated Approaches for Sustainable Urban Development

Urban growth, coupled with social and environmental problems, can pose great challenges for sustainable urban development. To meet these challenges, cities need to apply integrated urban planning approaches that not only allow for consideration of a wide range of priorities in urban planning, but also promote stakeholder involvement and coordinated planning, both between different levels of administration and between different sectors.

A session dedicated to integrated urban planning allowed for the exchange of experiences on how such approaches have been applied in practice in China and Germany, and what opportunities and challenges emerged. Discussants from the research and private sectors and from local government included Mr He Xiaojin, Vice-Mayor of the City of Yixing, Mr Müslüm Yakisan, Division Head at Siemens, Dr Xu Zhenqiang, Institute Director in Chief at the Chinese Society for Urban Studies, and Ms Gabriele Mallasch, Climate Protection Manager at the City of Dortmund.

Panellists discussed the comprehensive and coordinated bottom-up planning approach needed to leverage cross-sectoral synergies and to fully capitalise on new technologies. For foreign companies in China such as Siemens, the speed of urbanisation and the huge demand for flexibility and speedy implementation poses the biggest challenge to sustainable urban planning. While the involvement of the private sector in infrastructure planning is not yet a common practice in China, it is crucial for companies to be involved in the planning processes from early on in order to fully understand the demand and needs of Chinese cities and to develop suitable solutions. The benefit of engaging the private sector early in the planning process can be seen in the Urban Infrastructure Initiative (UII) by the World Business Council on Sustainable Developments (WBCSD), in which both Siemens and the city of Yixing (as the only Chinese city) participated. This close collaboration with different companies helped the city of Yixing define clear long and medium-term targets for city development in the fields of urban design, transportation and energy efficiency, and to identify respective strategies and solutions. However in addition to private sector involvement, it is also crucial to consult citizens, researchers, and other stakeholders to ensure broad acceptance and allow for evidence-based sustainable urban development. The city of Dortmund, for instance, not only collaborated with the private sector but also engaged a broad array of stakeholders (e.g. citizens, industry, trade associations) in developing and implementing climate protection measures to reach its ambitious target of reducing CO_2 emissions by 40 per cent by 2020. This approach helped mobilise key actors to engage in climate mitigation activities, building awareness and ownership of local climate action.

Looking at the ingredients for integrated sustainable urban development, panellists agreed that systematic and continuous stakeholder engagement is crucial, while new and flexible policies and strategies both at the local and national levels are needed to meet the specific demand of rapid urbanisation. In addition to planning and policy requirements, participants also emphasised that opportunities for leveraging private sector finance must be explored to fill the current gaps in financing infrastructure and to relieve the burdens on public institutions.

Mr Kan Xiaoxi, Director at the Ministry of Finance of the People's Republic of China

Mr Oskar von Maltzan, Head of Division at KfW

Financing Urban Infrastructure

While sustainable urban infrastructure offers vast opportunities for creating liveable, environmentally friendly, inclusive cities that drive economic growth, many cities around the globe face difficulties with respect to financing such projects. Consequently, examining innovative finance mechanisms and new forms and sources of financing, including private sector investments, is crucial to meeting financing needs in urban areas. In a session focused on these questions, new mechanisms and sources of financing were presented by Mr Kan Xiaoxi, Director at the Ministry of Finance of the People's Republic of China and Mr Oskar von Maltzan, Head of Division at KfW.

In China, local infrastructure financing traditionally posed great challenges for investment due to the high debt-to-equity ratio of many local governments and the limited opportunities for the private sector to invest in public infrastructure. Moreover, a lack of policy and regulatory frameworks coupled with insufficient transparency in pricing and fee adjustments and the absence of market mechanisms hampered the funding of infrastructure. In order to overcome these barriers, the Ministry of Finance of the People's Republic of China is promoting public-private partnerships to enable the private sector to invest in and operate city infrastructure through, for instance, improved support policies and measures and the establishment of a PPP finance support fund.

Under the umbrella of Sino-German Financial Cooperation, the Ministry of Finance of China has furthermore been successfully collaborating with KfW. KfW has been operating in China since the 1980s, with a particular focus on urban environmental infrastructure, climate-friendly transport solutions, climate and environment protection, hospitals, and higher vocational training institutions. As part of this financial cooperation, KfW provides primarily promotional loans, which are channelled via Chinese on-lending banks to the project implementing agencies. For KfW's promotional loans, a number of principles apply, including an international and competitive bidding process, the necessity for secured counterpart funding, and the requirement that the project demonstrates sustainability and innovation. Numerous projects in China have been successfully financed through KfW's promotional loan programme and led to innovative solutions and technologies.

Reshaping Mobility Patterns through Innovative Transport Planning

The transport sector causes 20 per cent of CO_2 emissions in cities. While CO_2 emissions are declining in the European Union, the share emitted by the transport sector has gradually increased due to the growing distances travelled. In China, the continuous growth of transport and traffic volumes also brings significant challenges, such as increased air pollution, GHG emissions, traffic congestion and accidents, leading to severe impacts on the environment and posing significant health risks to the population. Consequently, the need to improve public transport while reducing car use was stressed by panellists. These included Dr Wulf-Holger Arndt, Head of Research Unit at the Technical University in Berlin, Mr Sun Mingzheng, Chief Engineer at the Beijing Transportation Research Center, Ms Sandra Retzer, Head of Cluster Sustainable Urbanisation, Transportation and Energy at GIZ, Professor Zhang Weihua, Dean at Hefei University of Technology, and Mr Tilo Franz, Managing Director at Hamburg-Consult.

Integrated land use and transport planning focused on developing high density, mixed-use areas can help to promote public transport while reducing car dependency and travelling distances. The German city of Freiburg with its dense, mixed-use city centre provides an excellent example of how to incentivise cycling and walking. In fast growing megacities in China, transit-oriented development (TOD) that fosters the design of dense mixed-use areas around mass-transit systems is particularly effective at enhancing access to public transport.

In addition to combining transport and land use planning, it is important to integrate different modes of transport, such as trams, city buses, neighbourhood buses, subways and cycling to make public transport more attractive. The city of Beijing has prioritised the development of public transport since 2005, and has spent more than 50 per cent of public investments during the 11th Five-Year Plan on developing and improving different means of public transport. Transport demand management measures implemented in the city include, for instance, the introduction of Bus Rapid Transit (BRT) and the use of new energy vehicles (e.g. energy-saving buses), parking rate adjustment, and the development of a public bicycle network. These measures have helped to significantly improve carrying and service capacities of public transport and have eased pressure on traffic congestion. However, major challenges remain, such as a lack of coordination between urban planning and transport development and the lack of public transport infrastructure. Bilateral cooperation and the development of much-needed capacity among planners can help to meet these challenges.

For this reason, the city of Beijing and GIZ have joined forces and collaboratively worked on many transport projects. As air pollution in the city is on average 3.5 times higher than recommended by the WHO and 20-30 per cent is caused by road transport, GIZ has prioritised creating incentives for alternative mobility trends, such as car sharing. Statistics on the impact of carsharing in Europe reveal that sharing a vehicle can reduce the need for four to ten privately owned cars and has significantly contributed to the reduction of vehicle kilometres travelled. However, integration with other modes of public transport is crucial. With only 350,000 members in 13 cities and merely a few (e-) car sharing companies registered, this alternative mobility trend is still at an early stage in China. However, smart mobility planning combining all means of transport in one application may help to promote car sharing in China and help to limit the currently speedy registration of new cars.

Using a promotional loan from KfW, the City of Huainan is currently establishing an urban intelligent transportation system to tackle the problems emerging from urban growth and increased traffic volumes. In cooperation with the Hefei University of Technology, the city will develop an intelligent road transport management and control system by advancing traffic integration management based on big data, introducing a comprehensive low-carbon service system for travelling based on data sharing, and a traffic signal control system for BRT.

Another case study offered a solution for how to utilise existing infrastructure to allow for sustainable urban development. At present, railway lines connecting city centres with suburban areas are scarce in Chinese cities. For this, a pilot project financed by KfW has developed a concept for a Suburban Commuter Rail System for the city of Chongqing which draws on the experience of the German S-Bahn system. Based on the notion of sharing tracks with metro and mainline railway and using the same signalling and operation control systems, the concept allows for lower investment and operation costs.

All case studies emphasised the need for integrated transport planning that involves participation of all stakeholders, as well as the necessity of building local capacities.


Planning and Design for the
ystem of Huainan City
Zhang, Weihua)
Technology
中德可持续城市发展对话论坛
城市基础建设在关键领域的解决方案


Treatment and Resource
in China

Promoting Sustainable Wastewater and Solid Waste Management

Rapid urbanisation and economic growth can lead to steep increases in the generation of wastewater and solid waste. Indeed, the amount of waste generated by cities is expected to double in the coming 15 years. In a session focused on innovative approaches to addressing these challenges, a number of case studies from Germany and China were presented by Mr Zhang Yue, Inspector at the Ministry of Housing and Urban-Rural Development of the People's Republic of China, Professor Dai Xiaohu, Dean at the Tongji University, Dr Ulrich Katenkamp, Head of Division at the Federal Ministry of Education and Research in Germany, Ms Zhao Jianrong, Deputy Director at Yunnan KETDZ Environment Bureau, and Ms Xiao Lan, CECEP Vice President and Head of Office at China's National Environmental Protection Corporation.

China faces greater pressure from waste than any other country on earth. Its municipal solid waste production already surpasses the USA as the biggest waste generator, and this amount is projected to grow in light of fast economic and population growth coupled with accelerating urbanisation. However, investments in solid waste management in China have already led to significant progress. 300 incineration plants, which currently provide the most efficient solution to waste treatment in cities, are currently in operation or under construction in China, with a capacity reaching 100m tons per year. Sino-German cooperation in particular can play a decisive role in achieving more sustainable waste disposal management in urban areas. For instance, China's most modern incineration plant, which is located in the city of Hefei and applies a comprehensive approach to solid waste disposal, was financed through a KfW promotional loan. The plant serves as a demonstration base for environmental protection education and provides a good example of successful Sino-German cooperation in this area. The solid waste disposal enterprise CEPEC was also involved in establishing Hefei's incineration plant, and has implemented numerous projects in the country, including the new household waste recycling system in Xiamen and a waste incineration plant in Chongqing city.

In addition to the growing amount of waste produced in cities, water pollution and water wastage pose great challenges to the health of the environment and of the population. Low reuse rates of water resources, water logging, and incorrect maintenance in many Chinese cities enhance the need for sustainable water management in order to secure sufficient water supply. Moreover, existing technologies are not capable of dealing with complex water pollution and hinder the urgently needed reuse of water resources. In response to this situation, the Chinese government has placed sustainable water management high on the agenda, having allocated RMB 4 trillion to improve water infrastructure in urban areas.

Germany's government has also set up a number of national and international action programmes, including BMBF's Water Research Programme, which seeks to find solutions for rainwater collection and treatment, reduction of water losses, separate collection, and treatment of water. Under the Sino-German Research and Innovation Programme Clean Water, both countries have joined forces to collaboratively work on efficient environmental protection and resource management systems. Under this framework, the Semizentral demonstration project was successfully implemented in the city of Qingdao. Semi-centralised supply and treatment provides a resource-conserving alternative to conventional centralised systems by changing the concept of wastewater treatment and resource recycling. Also in the city of Kunming, a KETDZ wastewater treatment and reuse project and an integrated environmental improvement project were implemented, both financed through KfW promotional loans. These projects helped to solve the problems of wastewater collection and treatment in the surrounding river basin, helping to solve the problems of flooding, enhancing the quality of life of the citizens, and boosting the competitiveness of KETDZ.

These examples of the various projects confirmed the need for evidence-based decision-making and the necessity of enabling conditions to promote sustainable wastewater and solid waste management. While new investments and research for innovative technologies are required to establish sustainable wastewater and solid waste management practices, it is of similar importance to apply an integrated and holistic approach to socio-economic development to allow for embedded solutions with an impact beyond the mere technological implementation.

Meeting Current and Future Challenges of Sustainable Urban Development

Reflecting on the detailed case studies presented throughout the sessions, the key urban planning and development priorities in China and Germany were discussed in the final session, as were the possibilities for future Sino-German cooperation. Panellists included Mr Sun Jianyuan, Director at the Ministry of Finance at the People's Republic of China, Dr Christine Heimburger, Director at KfW, Ms Cornelia Richter, Managing Director at GIZ, Mr Zhang Yue, Inspector at the Ministry of Housing and Urban-Rural Development at the People's Republic of China, and Dr Vera Rodenhoff, Head of Division at the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, Germany.

In 2013, the German and Chinese governments expressed their interest in expanding and deepening their cooperation under the framework of the Sino-German urbanisation partnership. While negotiations are currently ongoing on how to best implement the partnership, it is agreed that the thematic focus will be on climate-friendliness, the environment, energy efficiency, renewable energy, urban renewal, and smart cities. Considering cities' decisive role in implementing national and international targets, it was frequently highlighted that municipal authorities must be empowered both financially and in terms of capacity to foster sustainable urban development. However, while the development of new urban infrastructure is crucial and much needed to meet growing demand, emphasis should also be placed on maintaining urban infrastructure to sustain economic growth. This is a particularly urgent issue in many German cities.

Furthermore, panellists stressed the demand for integrated approaches to urban planning and development. The early engagement of stakeholders in planning process will not only aid in enhancing accountability and transparency but also in securing the support and backing of the local population for infrastructure projects. In China, acceptance and awareness of the importance of stakeholder involvement has significantly increased in recent years. At the national level, China's National Urbanisation Agenda is already calling for integrated and participatory approaches. At the local level, such approaches are already common practice in the form of, for instance, multi-stakeholder roundtables. However, the engagement of local stakeholders is often not done in a satisfying manner and needs further improvement. In addition to broad stakeholder involvement, the necessity of extra efforts to encourage and involve the private sector was highlighted. While a lack of legislation and regulation is currently still hampering private sector investments in China, the model of PPP has gained much attention but requires consideration of and adaptation to the local context.

In addition to financing urban infrastructure projects, guidance and expertise on how to best design and implement such projects is of great importance for their success. KfW not only provides loans but also reviews and discusses feasibility studies with its project partners, provides technical support during the tender process, and offers credit lines to support smaller projects. In Germany, moreover, KfW has various programs in place to promote investment of municipalities and private households in urban infrastructure. Given that much of the population growth is projected to take place in smaller and medium-sized cities, KfW is currently exploring opportunities to strengthen its focus on these kinds of cities. This would also ease the transfer of experience and knowhow from the German context to China.

As regards global processes, ensuring implementation of the urban dimension of the recently approved Sustainable Development Goals (which is not limited to goal 11) and the success of Habitat III has been a high priority for Germany. The German position on Habitat III, which has recently been submitted to the Habitat Secretariat, involves three priorities: enabling local actors both internationally and locally, creating livable cities, and implementing integrated planning and development approaches.

In conclusion, panelists confirmed the importance of Sino-German cooperation on urban development and planning. It was agreed that the implementation of integrated approaches and the involvement of local stakeholders are key to achieving the goal of sustainable urban infrastructure. Moreover, the focus of future cooperation should be on empowering and capacitating local authorities to accelerate the implementation of infrastructure projects. The continued exchange of knowhow and technologies between Germany and China will, alongside continued financial cooperation, play a crucial role in this regard.


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中德可持续城市发展对话论坛
城市基础建设在关键领域的解决方案


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中德可持续城市发展对话论坛

Closing Remarks

In their final remarks, Dr Peter Failer, Director General at the German Federal Ministry of Economic Cooperation and Development, Mr Liu Weihua, Director at the Chinese Ministry of Finance and Ms Ulrike Lassmann, Director of KfW Office Beijing, praised the conference's fruitful discussions. The expert input highlighted the challenges and opportunities of sustainable urban development and fostered reflection on Sino-German cooperation in urban infrastructure development and how it helps make cities more liveable. They agreed that such discussion and cooperation is beneficial to both Germany and China and should be continued in the future. Finally, they thanked the panellists and ministries and organisations for making the event a success.

Mr Liu Weihua, Director, Ministry of Finance, P. R. China

Ms Ulrike Lassmann, Director of KfW Office Beijing