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Summary

Webinar Urban cycling – A smart move!

How to integrate cycling into sustainable urban transport systems

December 21st, 2017

Background

In the light of ongoing urbanisation and climate change, the need for sustainable and liveable cities today is stronger than ever before. To tackle local air and noise pollution and urban congestion as well as to reduce the emission of greenhouse gases, we need to focus on the development of sustainable transport systems, giving priority to pedestrians and cyclists and strengthening public transport. Cycling in particular is an indispensable part of the story and cities like Copenhagen or Aarhus even take a step further – Cycling is not only a sustainable means of transport but a lifestyle and an indicator of the liveability of a city!

Why should we promote cycling?

Cycling for five reasons:

- 1. Cycling for sustainable transport!*
- 2. Cycling for the environment!*
- 3. Cycling for personal health!*
- 4. Cycling for tourism!*
- 5. Cycling for better cities!*

What are the current approaches to make cities cycling-friendly and cycling-ready? What are the accomplished best practice cycling infrastructure projects? What are the more successful policies to promote urban cycling? What is the future of bike sharing? What are the current opportunities and challenges of urban cycling? What can we learn from the free-floating bike-sharing boom in China?

With these questions in mind, a webinar on urban cycling was organised by the GIZ sector network TUEWAS Working Group Transport & Environment (T&E) in cooperation with the Sino-German Cooperation on Low-Carbon Transport project (CLCT) and the GIZ Sustainable Urban Transport Project (SUTP). The 90-minutes webinar was held on 21st December, 2017 in Beijing, moderated by Mr. *Sebastian Ibold*, project manager of *CLCT*, who was joined by about 30 participants from Asia, the Middle East and Europe.

Two guest speakers, Mr. *Liu Daizong*, China Transport Program Director of World Resources Institute (WRI), and Mr. *Pablo Celis*, Project Manager of City Road Division of Municipality of Aarhus, Denmark, presented their perspectives on how cycling can be sustainably implemented into urban transport systems.

The title of Mr. *Liu*'s presentation was "Bikes Makes Cities Thrive Again" and Mr. Celis presented "The Rise of A Cycling City".

Presentation 1 - Bikes Makes Cities Thrive Again

Liu Daizong, Director of China Sustainable Cities Program and of China Transport Program, WRI

Mr. Liu began with the "transportation revolution" in China, referring to the bike-sharing boom. "*Why is it happening? What are the challenges and opportunities in the bike sharing revolution?*"

In the first part of his presentation, Mr. Liu focused on the relationship between bicycles and cities. He pointed out that multi-mode transportation makes urban districts thrive in the U.S, with the latest general trend being the rapid growth of bike travel. He proceeded to the cases of Amsterdam, Copenhagen, Utrecht and Malmo to demonstrate cycling-friendly cities regarding their infrastructure and cycling facilities. Mr. Liu mentioned that now many cities in the United States (which is traditionally a car-oriented country) put more energy and efforts on the development of cycling-readiness. The city of New York expanded its cycling network massively within the last 20 years. According to Mr. Liu, the reason that cities invest a considerable amount into cycling is "*because only multi-modal transportation means can help the city being successful.*" The benefits of investing in cycling infrastructure include (beside others):

- **Cycling is good for health.** According to Mr. Liu, the Danish levels of cycling in the UK would save the National Health Service (NHS) USD 19billion in the next 20 years.
- **Cycling is good for the city and the environment.** Cycling saves potentially up to a third of road space compared to driving a car, to help cut congestion.
- **Cycling is social.** Cycling increases mobility of the poorest families by up to 25 percent.
- **Cycling is good for the (local) economy.** Cycling contributes to the revival of local businesses. According to Mr. Liu, the comparison of Copenhagen and Cleveland, Ohio shows that bike cities have more and bigger commercial areas.

In the second part of his presentation, Mr. Liu spoke about the rise of bike-sharing in China. He started with the history of bike-sharing from the early 1960s in Amsterdam to the first modern bike-sharing system in Paris in 2007, leading to "*the latest revolution of the bike-sharing system in China – the dockless internet-based bike-sharing system*". Mr. Liu pointed out that it took *Mobike*, the biggest private bike-sharing company in China only 1.5 years to have 8 million bikes under operation with about 200 million registered users and 30 million trips per day. Compared to that, the governmental docked bike-sharing systems attracted only 800,000 users during the

last 10 years. *“It’s very interesting that in China, the private sector is a very strong power to expand the bike-sharing system. People in China really like the (dockless) bike-sharing system. The Mobike mode really meets the demand of people in urban transportation.”*

The benefits of the expansion of the free-floating bike-sharing market are:

- **Increased cycling modal share.** Within one year, the cycling modal share in Beijing climbed from 5.5 percent to 11.6 percent as a result of the spread of free-floating shared bikes and cycling has increased in popularity by over 100 percent.
- **Increased integration into the public transport system.** Cycling is an important feeder mode, which complements and supports the public transport system.

However, along with the success of free-floating bike-sharing in China came challenges, with the issue of parking among the biggest problems. Currently China’s *Ministry of Transport (MoT)* and more than 20 cities have published [guidelines](#) to regulate free-floating bike-sharing. The guidelines mainly focus on:

- **Deposit Management**
- **Parking Management**
- **Data Regulation**
- **Quantity Control**
- **Technical Requirements**
- **Government Institution**

In closing, Mr. Liu shared the best practice example of Seattle Bike Share Permit Requirements, emphasizing four main differences from the Chinese guidelines, namely:

- **Focus on cycling safety.** Seattle puts focus on the safety indicators, while China focuses more on bike scrap.
- **Detailed requirements on parking management.** Seattle stipulates that the city may remove bikes parked for more than seven consecutive days without moving.
- **Operations and access.** Instead of controlling the overall number of bikes, Seattle controls the density and speed of putting new bikes in the street. The service areas of bike-sharing companies cannot exceed 130 bicycles per square kilometer. The service providers can put no more than 500 new operated bicycles on the street during the first month, 1,000 new bicycles for the second month and 2,000 new bicycles for third month. In Seattle, all permitted operators shall have a performance deposit of USD 80/bicycle, with a cap of USD 10,000 to the city administration. If the government finds the operator breaking the rules, it fines the company directly from the deposit.

- **Data formatting and sharing.** A documented application program interface (API) is given out to all bike-sharing companies as a format to report data to the city government.

Presentation 2 - The Rise of A Cycling City

Speaker: Pablo Celis, Project Manager at the Road Division of the Municipality of Aarhus, Denmark



Pablo Celis and his daughter riding bicycle in Aarhus.

“This is for me the great example of a life-sized city where you are able to ride your bicycle with your kids without wearing a helmet, just enjoying life.” Pablo Celis

Mr. Celis said that Denmark is a cycling nation with a strong bicycle culture. As the second largest city in Denmark, Aarhus has a population of 300,000, 15 percent of which are students and is growing every year by more than one percent. The first bicycle path ever constructed in Aarhus dates back to 1894. *“We have more than 100 years of tradition in building bicycle paths.”* However, the share of cycling as a means of transport has been going down in Denmark since the late 1950s. Mr. Celis focused his presentation on challenges in making the city cycling-ready in on how Aarhus implements innovative solutions to promote cycling.

In the municipality of Aarhus there are 675 km of protected bicycle paths (the city has a road network of 1,250 km in total) and about 25 percent of all trips to work are made by bicycles, which is a quite high number compared to other cities in the world. However, in Odense (the third largest city in Denmark) the number is 30 percent, and the capital Copenhagen has a bicycle modal share as high as 45 percent. Mr. Celis pointed out that there are three main reasons for the relatively low modal share of cycling in Aarhus, including:

- **Aarhus is a hilly city.** Traveling from the inner city to about six km out of the city, cyclists have to elevate themselves about 100 meters.
- **Aarhus is a big municipality.** There are many suburbs situated in distances of 10-20 km away from the inner city, much longer than the average bicycle usage radius of five or six km.
- **Bicycle infrastructure is mainly situated along the main roads.** Problems with congestion, pollution and traffic safety keep cyclists away from cycling.

With all the challenges in mind, the city council commissioned USD 12million to promote cycling.

“My main idea was, well we have the bicycle infrastructure needed. We have around 700 kilometres of bicycle paths. So if I have to build new bicycle paths, I will do it in between the main roads, not alongside the main roads and build super-cycle highways, so you can get fast from the rural cities to the inner city of Aarhus.”

Mr. Celis’ team made careful use of the investment and implemented a number of projects, including:

- **The construction of a cycle superhighway.** *“They say, well the bicycle is not an option for me because they need their car to ride 100 km everyday. And I wanted to prove them wrong.”* The first cycle superhighway was put into construction in 2010, and it hit a great success.
- **The construction of the first biking park terminal in Denmark.** The car-drivers entering the city could park cars for free and rent a free bicycle storage box. Therefore instead of being stuck in the traffic for 45 minutes, long-distance commuters could enjoy the 20-minute ride along the cycle superhighway to get into the inner city. *“This is an eye-opener for many because they suddenly start thinking that cars can be used in combination with bicycles.”*
- **The transformation of streets into bicycle streets.** Mr. Celis led his team in transforming a street in Aarhus into the first bicycle street in Denmark in 2012, in which priority is given to cyclists. The cars are allowed to enter the street (one way), but have to stay behind the cyclists. *“We have a lot of life in these bicycle streets that we didn’t have before.”*
- **Education campaigns for cyclists.** Pop-up stands were erected to explain and show to the citizens how to adjust their bicycle according to their individual needs. Often the height of the seat is not adjusted correctly which leads to the loss of impulsion power. People can fly away with a completely new cycling experience with their bicycles adjusted from these workshops. There are also many free bicycle pumps in Aarhus.
- **Several cycling campaigns for children.** *“Eventually kids would say that we want to go to school on the bicycles, we don’t want to sit in the back of your car.”*
- **“Bike to work” campaigns.** In an effort to raise the awareness of companies to have cycling facilities, one of the measures the city did was to provide car trailers with showers for the companies (for long distance cycling commuters).
- **Cleaning of bicycle paths.** Special tractors were purchased to clear the snow on bicycle paths and sprinkle salt to ensure that they are cycling-ready from six am to six pm every day during the winter season.
- **Restrictive measures on the use of car.** Many car parking spaces were removed. *“Today it’s almost impossible to find free (car) parking in the inner city.”*

The projects measures have turned out to be very effective in the promotion of cycling in Aarhus. Based on the success, there are now several projects under planning to make the city cycling-ready and strengthen the local bicycle culture:

- **The construction of a bicycle parking house**, with the capacity of 2,500 bicycles. The automated bicycle storage system is especially designed for the super commuters with expensive bicycles to have them securely stored.
- **The construction of the second cycle superhighway** alongside the newly opened light rail line. Taking advantage of the flat light rail bridges, the cyclists are expected to find this highway cycling-friendly.
- **The construction of a covered bicycle path** on the cycle superhighway. Not only could it give protection from rain and snow, the solar panels on the rooftop provide the highway with green energy (lights).
- **The construction of a 300-meter strawberry field** alongside the highway. The idea is to attract people other than the super commuters, so that the highway could be also used as a recreational place for a weekend excursion. And in this way more added value of the highway investment could be obtained.

Questions & Answers

Following Mr. Liu's and Mr. Celis' presentations, Mr. Ibold moderated a Q&A session to address questions received during the presentations. Key questions and insights from the presenters are summarised below.

Question:

Can you talk more about the application of geo-fencing in the parking regulation of dockless shared bikes in China? Who has the lead in deciding the landscape of dockless shared bikes parking?

Answer:

Liu Daizong: I don't think geo-fencing is a very mature technology for parking management of shared bikes. But the good thing is that bike sharing companies such as Mobike and Ofo are providing incentives to encourage people to park within the geo-fencing zones. The parking spaces are a result of the joint discussion between bike-sharing companies and local governments. Some Chinese cities are starting to design guidelines to regulate the parking of dockless shared bikes or add a new chapter to the existing street design guidelines. So the public sector and the private work together to solve this problem.

Question:

In which year was the bicycle street adopted into the legal framework in Denmark?

Answer:

Pablo Celis: In 2016.

Question:

What is the social-economic status of common bikers in Denmark?

Answer:

Pablo Celis: In Denmark, it's not only the low-income people who choose to use bicycles. Actually many of the super commuters are people with high income. Cycling is not considered as a low-status thing to do in Denmark. When we do bicycle

promotion, it's for everyone. If you have a lot of women riding bicycles in your city, then you have a true liveable city because people feel safe in using their bicycles. And if you also have kids riding in the city, you have the optimal city. And we have both in Aarhus. I think we are quite privileged. We don't see all the problems you have in the States.

Question: How to ensure the safety along the cycle superhighways?

Answer:

Pablo Celis: I presume you refer to the social safety – the safety of not being robbed. In Denmark we don't have big problems of people getting robbed. People just use them – 54 percent of the super commuters are women and they are using it without any problem. We have a good economy in Denmark, so that's not an issue in Denmark.

Question:

With the development of bike-sharing, many people only see chaos and the problems they cause not only in China, but also in London and Munich. What do we need to do to keep the positive dynamic?

Answer:

Liu Daizong: First of all, it is a common problem to have. That's because at the beginning the bike-sharing companies just want to build up the scale of the market. You can also find similar pattern in other countries in this Internet startup industry. Secondly, all the venture capital needs to get profit. If they put so many bicycles into the street without any profit, it's not sustainable. If the bike sharing companies can better analyse their data and see where the demand is, they can put bikes to exactly where the demand is, in cooperation with the city administrators.

Question:

Do you think the free-floating bike-sharing program can work in Denmark?

Answer:

Pablo Celis: I think so. A lot of people use intermodality. They use the train to get into the city or to their workplace, always missing the bicycle element of the trip. So we are going to introduce the dockless bike-sharing system in Aarhus. We are going to offer them as the last mile solution for people using public transport. We just opened the light rail in Aarhus, but the trains are not big enough for people to take bicycles into them. So the idea is that when people get out of the light rail, they can have the dockless bike-sharing system to finish their last mile to work.

Question:

We see that you classify the cyclists. There are super commuters, there are people who use bikes for leisure reasons... How do your policies and infrastructures adapt to the different needs of these cyclists?

Answer:

Pablo Celis: The cycle superhighway is a direct reflection of this. The super commuters that ride 25 km need to get to their workplace fast. So we don't want to provide them with routes where they have to stop at intersections 15 or 25 times getting into the inner city. We've also had some projects providing super commuters chips on their bicycle that gives them priority at intersections in the inner city.

Closing Information

Ms. Ibold thanked presenters and webinar participants for participating in the webinar.

About the Speakers

Pablo Celis

Today, Mr. Celis is employed in the Municipality of Aarhus – City Road Division, where he works with traffic plans and traffic analyses especially with the purpose of reducing the accidents and insecurity caused by traffic. Aarhus is the second largest city in Denmark.

Mr. Celis has great experience with projects improving the conditions for bicyclists in the cities and rural areas. The most recent project has been the making and implementation of a Cycling Action Plan for the municipality of Aarhus. A work that has resulted in a 19 percent increase in the cycling use the last 4 years in Aarhus. Pablo Celis is the author of several guidelines and handbooks on how to implement cycling measures in Denmark. Recently he has published the Danish Cyclopedia on how to make cycling infrastructure in Denmark based on more than a 100 years' of practical experience. The more than 400 pages big handbook has not yet been translated to English. Mr. Celis is the director of Celis Consult that was founded in 2003.

In the period 2001-2003 Mr. Celis was employed as a project manager, technical and political advisor for the Danish Cyclists Federation, where he worked with a broad range of projects involving facilities for cyclists – route network planning, traffic safety audit and physical planning in general. Mr. Celis was the coordinator for the Cities for Cyclists network in Europe, and has in regard to this a comprehensive knowledge on bicycle facilities from other European countries.

In the period 1999-2001 Mr. Celis was employed at COWI Consulting Engineers, where he has worked on several traffic projects in Denmark – including large infrastructure projects involving O-D investigations for cyclists using traffic models. The primary field of expertise was planning, collecting and processing traffic data in projects, traffic safety assessment, draft design and – in general – all projects involving cyclist facilities.

In the University of Aalborg Mr. Celis majored in an into-depth investigation of cyclist accidents in Denmark.

Daizong Liu

Daizong Liu is China Sustainable Cities Program Director and China Transport Program Director of World Resources Institute (WRI). He has led and managed a number of projects, including Transit Metropolis project partnered with the Ministry of Transport, and local governments like Kunming, Guiyang, Suzhou and Zhuzhou, Low

Emission Zone/Congestion Charging project with Beijing Municipal Commission of Transport, Road Safety project with China Academy of Urban Planning & Design, and Sustainable and Livable Cities project with Chengdu and Qingdao Development and Reform Commission.

In 2013, based on his 10 years' work experience in transit development in over 10 Chinese cities, Mr. Liu established the theory of CSTOUR (Comprehensive Solution for Transit Oriented Urban Redevelopment). In 2014, he was appointed as the Independent Board Member of Chongqing City Transportation Development & Investment Group Co. In 2017, Mr. Liu was appointed as the member of the third Expert Committee of Beijing Municipal Commission of Transport, and also was appointed as the member of Expert Advisory Committee on Transportation of Guangzhou Municipal Government. In year 2014, he established a non-profit social media platform with WeChat and Weibo public accounts named @SustainableCity, bringing a group of 200 passionate professional volunteers to promote sustainable urban development. The platform has attracted over 40,000 followers today. In addition, he has co-authored two books and published more than 10 professional papers.

Mr. Liu has obtained Master's degree in Civil Engineering from National University of Singapore, and Bachelor's degree in Transportation Engineering from Southeast University in China. Prior to joining WRI, he has worked 10 years for China Sustainable Transportation Center of Energy Foundation as a senior program associate, and 3 years for CPG Consultancy Company in Singapore as the transport project manager.