

# Challenges and Opportunities to Promote the Universal Accessibility and Social Inclusion in China

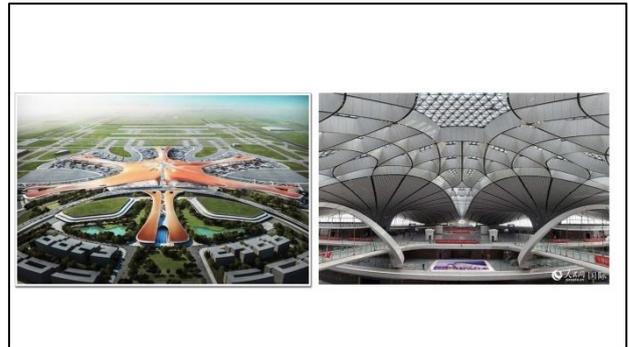
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## 1. Introduction

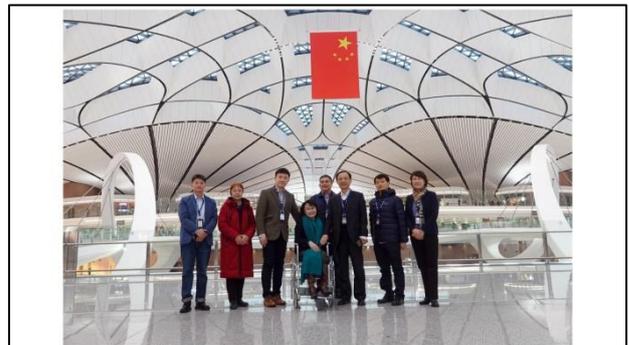
I appreciate the invitation from the University of Tokyo to be here to share knowledge and be inspired by the experts from all over the world. It is also my pleasure to keep you updated about the accessible development in China. You will find that there is a lot of consensus among us on the concept of development. I am a tenured professor in the school of architecture and an architect, but the institute is a transdisciplinary institute. There are a lot of things to say, but I chose to explain why we do, what we do, who we are, and what we face.

Firstly, I will show you three examples that are now happening in China (Slide 1). The first one is the new international airport in Beijing, which was just put in operation last September. The architect is Zaha Hadid, a famous architect. I think it is a new version of the concept of accessible or inclusive design.



Slide 1

Last week, I visited the new airport together with the chairperson of the China Disabled Persons' Federation and experts from the Olympic and Paralympic advisory board for accessible design (Slide 2). The chairperson, Zhang Haidi, is also the President of Rehabilitation International.



Slide 2

This is a good design (Slide 3). Putting the lower service counter in the center makes everything in harmony. That is the check-in counter.



Slide 3

Look at the toilet (Slide 4). Maybe it is familiar for Japanese; it is like a Japanese-style toilet. However, it has shortcomings. The color contrast between the sanitary fittings and the wall should be a little larger, with dark walls and white sanitary fittings.



Slide 4

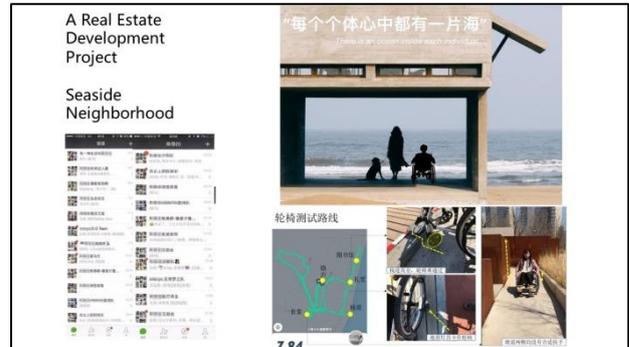
To tell you the truth, there is contribution from the University of Tokyo. Three years ago, an annual academic conference, Academic Week, was held in Beijing and I held an accessible design forum and invited some professors from the University of Tokyo. They gave examples of the renovation of Haneda Airport. This is one example (Slide 5). Why could we not make the tracks at the check-in counter level with the ground (as seen in the left picture)? It was a little too late for the new airport because the structure had already been built at the time. In order to follow Haneda's design, the producer tilted the tracks and eliminated the height difference (as seen in the right picture). This is a case of an important collaboration and international exchange.



Slide 5

The second example is a commission we worked on last year. It is a real estate development project (Slide 7). In the beginning, it could be the second or third home for the middle-income or high-income people in Beijing. Mostly they are middle-aged families and so the developer was not aware of aging problems until the families took their parents to the project and the old people stayed there. You may ask why. The highlight of the project was the seaside. A two-hour drive from Beijing takes you to the beach. When there was a

huge demand for accessible facilities, the developer began to give a commission to renovate the project. This picture is not a real scenery. It is by Photoshop. We added a wheelchair user and a guide dog in it. They want to change the beach into an inclusive beach.



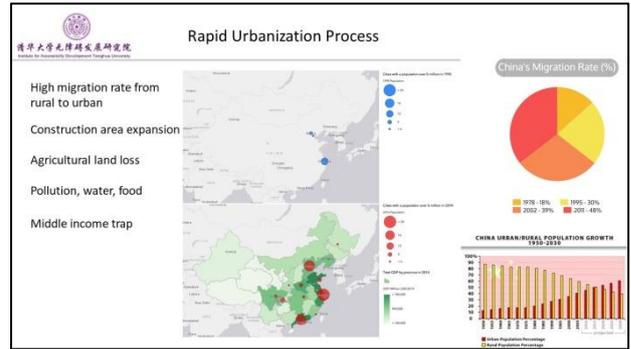
Slide 6

Another highlight of this project is internet community. There are 3,000 families in the project and more than 300 discussion groups. They are using a kind of social software to communicate with each other, so everything could be carried out on the internet. It is almost like a case of *machizukuri* on the internet.

The third example is of a collaboration, self-help, and co-design. We launched a training program two years ago to train wheelchair users and other people who are interested in accessible development to help themselves or be a lecturer (Slide 8). Fortunately, all the students graduated in the end of last year and are involved as volunteers in the preparation of the Beijing Olympic and Paralympic games. They even help the government collect data on accessible facilities. The Beijing municipal government has an accessible environment construction information management system, a geographic information system (GIS), to manage all the facilities all over Beijing (Slide 9). It uses a big data method and needs a lot of work for collection of data. We use mobile phones to locate the locations, take pictures, and upload to the system.

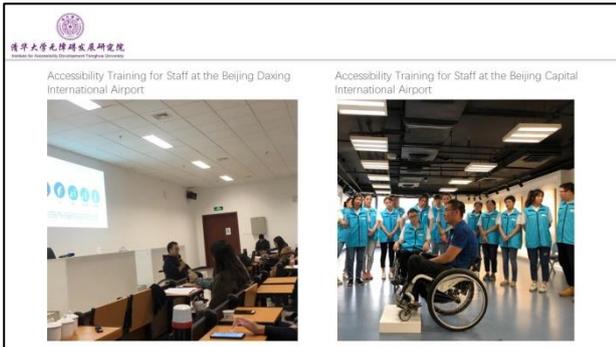


Slide 7



Slide 10

You may know the concept of the middle income trap. For China, the average GDP per capita now is more than US\$10,000, but it has stopped. Japan was a very successful country that passed over the trap, but China is now just reaching the edge of the trap. This means rapid development with the accumulation of problems and contradictions.



Slide 8

We have many problems, for example, a social gap. We can talk about this from income and segregation, but there is another problem. It is *hukou*, the household registration system. Everyone is registered in one place. It has a kind of historic leftover problem. Rural and urban areas are connected with different kinds of welfare system. The families in the rural areas cannot share the same things with the residents in the cities. This began half a century ago to control the distribution of resources in order to get a high accumulation of city development. The graphs in Slide 11 show data from 2000 and 2010. The household registration ratio almost did not change, but many people in the rural areas moved into the cities. Those people that moved to the cities cannot share the same education and medical care as city residents. That is a very big social gap.

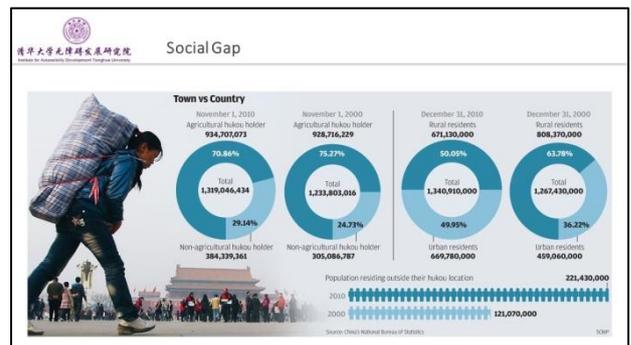


Slide 9

## 2. Situation around disability in China

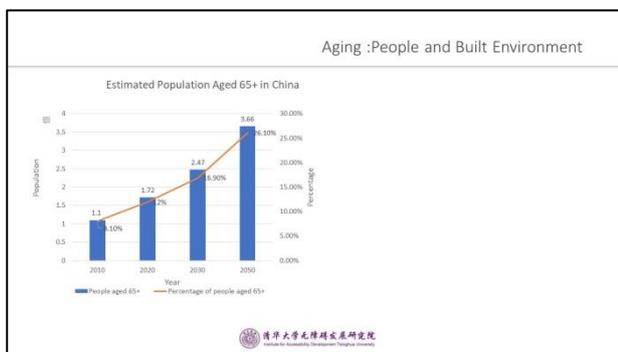
All this happened in the past three years. You may wonder how this came into being in such a rapid speed.

After the decades of rapid development from a market-oriented open reform policy, real estate development and global factories, China has had a very rapid urbanization process (Slide 10). Nowadays, the rate of urbanization is about 60%. In super large cities such as Beijing and Shanghai, it is about 90%, but in small cities it is 20 or 30%, so the gap is really large.

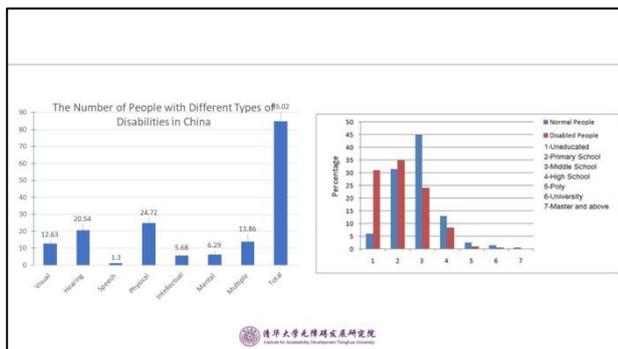


Slide 11

The aging process in China is very fast (Slide 12). Nowadays, people who are above 65 years old account for about 17% of the population in China. I think it is almost like Japan in 2000. The population of seniors in China is about 220 million and that of senior people with disabilities is about 44 million. The number of people that are officially disabled with a certificate of disability is about 85 million (Slide 13). Altogether, there should be more than 100 million disabled people. The red bars in Slide 13 represent the education level of disabled people. Most of them have an education level below primary school.



Slide 12



Slide 13

Now we have come to the culture. These people are very famous disabled people in Chinese history (Slide 14). Sunzi, the writer of *The Art of War*, is very famous all over the world. Zuo Qiuming is a very famous writer from the Spring and Autumn dynasty. He lost his vision in his senior age.



Slide 14

Nowadays, China is one of the members of the Convention on the Rights of Persons with Disabilities (Slide 15). We also have the 17 Sustainable Development Goals as our common sense (Slide 16).



Slide 15



Slide 16

### 3. The Institute for Accessibility Development (ADI)

On this background, four years ago, we established the Institute for Accessibility Development (ADI) in Tsinghua University (Slide 17). It is a transdisciplinary research institution cooperating with five or six departments or schools, including computer, architecture, urban planning, rehabilitation, finance, and sociology. It is directly supported by China Disabled Persons' Federation

and other government ministries and private sectors.

The Institute for Accessibility Development (ADI), Tsinghua University, was founded on April 23<sup>rd</sup>, 2016.

- University-level trans-disciplinary research institution and one of the six core-members in the Center of Tsinghua Think Tank.
- It is supported by the China Disabled Persons' Federation (CDPF) in conjunction with related state ministries and commissions, such as Ministry of Industry and Information Technology, Ministry of Housing and Urban-Rural Development, Ministry of Civil Affairs, and National Council on Aging.

Slide 17

We have three tasks (Slide 18). One is to be a good advisor. We are part of the Tsinghua Think Tanks, which is a very important think tank in China. The second is to be a human-settlement environment and technology innovation platform. The third one is to play the role of training and teaching. We focus on the legal system, national major projects, social innovation, education and training, information, and healthy aging (Slide 19). Our function is consultation, teaching, internal reference, project practices, conferences, international exchanges, and so on.

**Equity, Inclusive and Diversity**  
Promoting the Development of Universal Accessibility for All

- Based on global vision, international standards, and Chinese characteristics
- Connect well known corporations and organizations, world-class scholars and high-tech products

**Consultations and Research on China's National Conditions**

- Systematically research on living conditions and basic needs for people with disabilities and solutions of improving their social, economic, political, and cultural values, which contributes to providing scientific advice for policy makers

**Human-settlement Environment and Technology Innovation**

- Support and guide interdisciplinary research, including cross innovation in such areas as architecture, planning, industrial design, mechanical manufacturing, internet, healthcare and rehabilitation, social science.

**Training and Spreading**

- Manage research resources connecting with governments, the society and markets, and support excellent training and culture spreading.

Slide 18

2016-2019 Strategic Plan

Promote the development of the human settlements environment and public services on the basis of the paradigm of universal accessibility

**Focus Areas:** Legal System, National Major Projects, Social Innovation and City Updates, Education and Training, Information Technology, Healthy Aging

**Function:** Internal Reference, Academic Research, International Exchanges, Conferences and Workshops, Project Practices, Education and Training, Consultations

Slide 19

#### 4. Challenges

These are challenges with our works. The first is

how to do it right now. Everything is developing very fast, so we cannot wait. We have to play a role in national-level projects. One case is the action plan for accessibility enhancements in Beijing (Slide 20). On the right of Slide 21 is an airport. On the left is one of the most important new town projects in Beijing. It is the Xiong'an new district. It is almost like Yokohama is to Tokyo. We are making accessible guidelines for this brand new construction project.

National Major Projects

- National Major Projects
- Regulations and Standards
- Urban Renewal Social Innovation
- Technology Innovation
- Education and Training
- International Exchanges

**Action Plan for Host City Accessibility Enhancements-Beijing**

北京2022年冬奥会和冬残奥会组织委员会  
Beijing Organizing Committee for the 2022 Olympic and Paralympic Winter Games

Slide 20

National Major Projects

- National Major Projects
- Regulations and Standards
- Urban Renewal Social Innovation
- Technology Innovation
- Education and Training
- International Exchanges

Guidelines for Accessible Planning Standards in Xiong'an City of New Area

Universal Accessibility Design in Beijing Daxing International Airport

Slide 21

A second challenge is how to be a good advisor to change the policies or the institutional structure top-down and, more importantly, to push the process bottom-up. Through our publications, we put forward the strategy for accessible environment for the central government (Slide 22). We lifted it to a kind of national strategy or policy. Also, we released the Beijing Declaration on Universal Accessibility Development to all the dimensions in China (Slide 23). We are involved in the revision process of normal standards and make new policies on accessible universal specifications and some guidelines for aging or inclusive design for the public, the government, and private sectors.



Slide 22



Slide 23



Slide 24

A third challenge is social innovation (Slide 25). There have been many old and dilapidated neighborhoods in the past several decades. It is said there are 170,000 old neighborhoods waiting for renovation. Who pays for it? Who organizes it? By what kind of standard can we evaluate? Those are all problems.



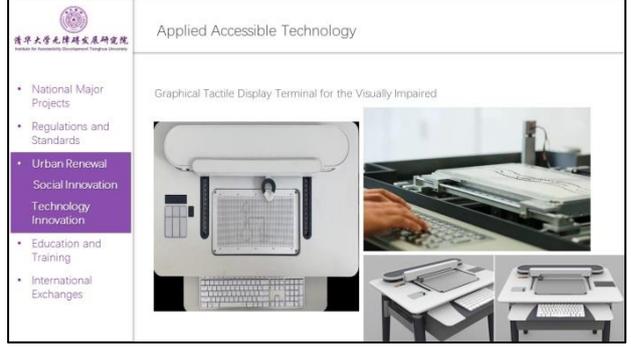
Slide 25

Another example is historical sites or areas (Slide 26). Just like Kyoto, Beijing is an old city and everything is limited by historical features. How do we make it more accessible? In the middle of this year, we will have a meeting with UNESCO about World Heritage inclusive development. How can we make our World Heritage sites more inclusive? It could be difficult.



Slide 26

Another challenge is the interaction of the human beings and the technologies. All these technologies were completed by professors in our institute. This is a graphical tactile display terminal for inborn blind people to study, for example, analytic geometry, chemistry, and physics (Slide 27). Using this, they can touch graphs. However, there are a lot of things we have to solve, such as copyright problems, how much content we can provide, and things like that.



Slide 27

Another example is that universal design is always market-oriented. Considering the benefit and the cost, how do we balance innovation and technology? This is a good example (Slide 28). The developer, one of our professors, found a way to develop an ear language. With this, you can use your ear to control your phone. This could be very convenient for visually impaired people.

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Tsinghua University Institute for Accessibility Development

Applied Accessible Technology

- National Major Projects
- Regulations and Standards
- Urban Renewal Social Innovation Technology Innovation
- Education and Training
- International Exchanges

Smartphone Touch Technology for Blind People

无障碍 高灵敏度 高效率

Current Use EarTouch

Slide 28

Another example is high tech and low tech. If we do not have electricity, how can we deal with all of these devices? This one uses the movement of the hip joints to provide energy for the legs, so it is a kind of exoskeleton without energy (Slide 29).

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Tsinghua University Institute for Accessibility Development

Applied Accessible Technology

- National Major Projects
- Regulations and Standards
- Urban Renewal Social Innovation Technology Innovation
- Education and Training
- International Exchanges

Automatic Energy Storage Exoskeleton

Slide 29

The last of our challenges is about training and teaching. There are actually about 10 million people with autism in China (Slide 30). We need people who can help us, so we launched a new training program with a behavior analysis organization from the United States to help people to train themselves and help parents to train their children (Slide 31).

清华大学无障碍发展研究院  
Tsinghua University Institute for Accessibility Development

Training and Workshops

- National Major Projects
- Regulations and Standards
- Urban Renewal Social Innovation Technology Innovation
- Education and Training
- International Exchanges

Training in Behavior Analysis for Autism Rehabilitation Therapists: Applied Behavior Analyst (ABA)

Category	Population (Million)
Autistic children aged below 12	2
Total	10

Organizers:  
Institute for Accessibility Development & School of Continuing Education, Tsinghua University

Certified by:  
Behavior Analyst Certification Board (BACB)

Slide 30

清华大学无障碍发展研究院  
Tsinghua University Institute for Accessibility Development

Training and Workshops

- National Major Projects
- Regulations and Standards
- Urban Renewal Social Innovation Technology Innovation
- Education and Training
- International Exchanges

Disability Equality Workshop: Information Accessibility (2019)

Slide 31

5. Collaborations

International collaboration is a very good method or opportunity to establish more connection and to be more inclusive in heart. This is what we did in the past several years (Slides 32-36). We established relationships with UNWTO, UNESCO, the European Union, and even the Madrid local municipal government to make better inclusive tourism.

清华大学无障碍发展研究院  
Tsinghua University Institute for Accessibility Development

International Conference on Accessibility Development

- National Major Projects
- Regulations and Standards
- Urban Renewal Social Innovation Technology Innovation
- Education and Training
- International Exchanges

Accessibility Strategy and Practice Forum 2019

Accessibility Forum under the Belt and Road Framework 2019

Slide 32

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Tsinghua University Institute for Accessibility Development

UNTWO Headquarters

UNESCO Beijing Office

Slide 33



Slide 34



Slide 37



Slide 35



Slide 38



Slide 36



Slide 39

Young students are also organized, especially students with disabilities. In October, the Accessibility Forum under the Belt and Road Framework had their own declaration (Slide 37). With our help, several best high schools in Beijing established an alliance for universal accessibility development (Slide 38). They have a very important role and their parents have a more important role. We even do some work for kindergartens (Slide 39). We take guide dogs to kindergartens and tell little kids what blindness is and what disability is. It is very important to plant the seed in their hearts.

Thank you very much. I really hope inclusiveness will be the common sense to connect everyone.