



BEIJING 北京

TONGZHOU 通州

TRANSIT-ORIENTED DEVELOPMENT & SMART MICRO CITY  
**公共交通导向的发展模式与智能微型城市**

RESEARCH BY DESIGN ON TONGZHOU NEW BEIJING EAST STATION AREA &  
QINGHE RIVER SURROUNDING AREA

通州新北京东站地区和清河沿岸地区设计研究

*Towards 2050: Developing a Sino-Dutch approach for Sustainable Urbanization*

迈向2050年：中荷可持续城市发展工作营

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Permeable pavement in Beijing

北京透水路面

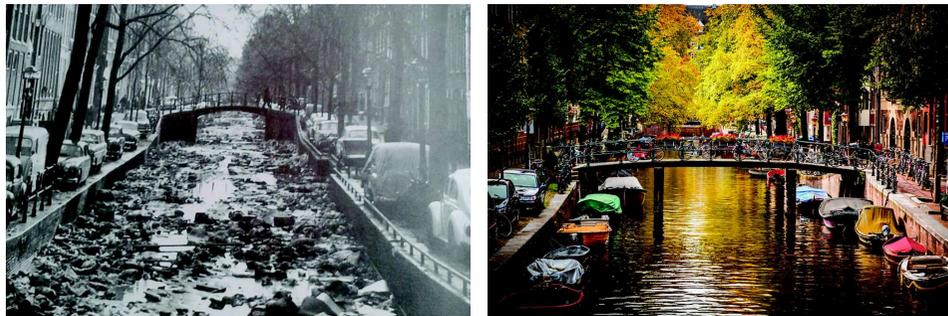
- Encouraging natural groundwater recharge (groundwater levels drop in Beijing due to groundwater extraction for drinking water) to minimise the impacts on aquifers and river baseflows in the receiving catchment;
- Reducing pollutant concentrations in stormwater, and protecting the quality of the receiving water body;
- Acting as a buffer for accidental spills by preventing the direct discharge of high concentrations of contaminants to the receiving water body;
- Reducing the volume of surface water runoff discharging to combined sewer systems, and reducing discharges of polluted water to watercourses via Combined Sewer Overflow (CSO) spills;
- Contributing to the enhanced amenity and aesthetic value of developed areas; and
- Providing habitats for wildlife in urban areas and opportunities for enhancement of biodiversity.

The appropriate use of sustainable urban drainage systems (SUDS) can reduce urban surface water flooding as well as reduce the impacts of urban stormwater pollution discharge on receiving waters. However, the performance of SUDS is not yet well understood by many stakeholders, and their efficacy is often questioned when compared with more traditional engineering solutions [Viavattene et al., 2013].

The focus of urban stormwater management has changed over the last few decades and now covers more aspects than just flood mitigation and public health protection. The stormwater industry has developed and adopted new terms to describe these new approaches, [Fletcher et al., 2014] including: best management practices (BMPs); green infrastructure (GI); integrated urban water management (IUWM); low impact development (LID); low impact urban design and development (LIUDD); source control; stormwater control measures (SCMs); water sensitive urban design (WSUD) and sustainable urban drainage systems (SUDS). Descriptions of SUDS, including their design, purpose and performance can be found in a variety of reference material.

Amsterdam around 1970 and 2015

阿姆斯特丹1970年左右和2015年  
 图片：左：Stadsarchief Amsterdam  
 右：from internet



所需使用的仪器，包括它们的设计，目的和性能的描述可以在各种参考材料中找到。在下一段中将讨论用世界各地最好的管理实践经验和案例，作为可以解决北京水管理问题的借鉴。研究案例，选择与我们的污染运河临近Westergasfabriek公园，相信可以给世界各地带来的借鉴经验。

案例研究北京

以下两个案例是运用于《迈向2050》研讨会的例子。该方法也被应用到清河的防洪计划中的湿地公园，于106页开始介绍了对于这种混合的生态湿地公园所带来的多种益处，具体来说在于：改善生态环境，方便交通，增加临近亲水的休闲区，改善水质。  
 试点案例荷兰式“运河”

在我们看来，阿姆斯特丹的运河河道已经不再是以前肮脏污染的河道了（图3），我们认为其改善方法也可以适用于北京的情况。

该改革规划包括：

- 综合设计和团队
- 了解情况及治理的决心
- 实施条例规范
- 清理减排
- 改进下水道系统
- 教育：提供公众意识
- 监控
- 监管与治理

In the next paragraph solutions for the Beijing situation from best management practices around the world will be discussed. Case studies such as the Dutch polluted canals approach and Westergasfabriekpark, can bring lessons learned from around the world.

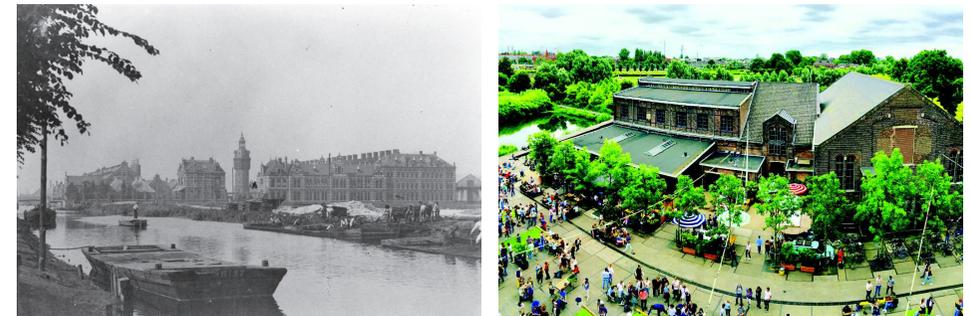
Casestudies for international knowledge exchange

Amsterdam Westergasfabriekpark

old time (left: photo: UPLabs)

now (right: westeriefde)

阿姆斯特丹 Westergasfabriekpark  
 旧时照片，左图  
 现状照片，右图





Eastern Scheldt storm surge barrier  
<http://en.academic.ru>  
 Three Gorges Dam  
 Le Grand Portage Derivative work  
 Photo: wikipedia

上: 荷兰东斯海尔德风暴潮屏障

图片: <http://en.academic.ru>

下: 三峡大坝

图片: wikipedia

The next two pilot cases from the Netherlands are examples of lessons learned that were in the workshops of the Towards2050 team. The approaches are applied to the development of the wetland park that is part of the flood protection plan for the Qinghe River and described on page 107. For this mixed ecological wetland park, multiple benefits are implemented, such as: improvement of ecology, accessibility and recreational opportunities next to adaptation to floods, and improvement of the water quality.

#### Pilot case Dutch situation: 'the canals'

From the Dutch perspective is not that long ago that our waters were polluted; our approach can be applied to the Beijing situation.

The action plan covered:

- Integrated approach and team
- Determination of situation and ambitions
- Implementing regulations
- Emission mitigation
- Improving the sewer system
- Education: public awareness
- Monitoring
- Evaluation & governance

#### 案例研究: Westergasfabriekpark

在19世纪末期,当时的荷兰帝国大陆天然气协会 (ICGA) 于阿姆斯特丹建造了两座煤炭工厂, (东、西煤气厂)。在刚开始的时候,煤气被用于城市道路照明。

后来,工厂被关闭了,工厂所在地被严重的污染,这使得在该原址上重建任何项目显得异常的艰难,这与北京的一些地点有着相似的经历。与此同时,GEB即城市能源公司将其用作车间和仓库。1992年,原工厂被暂时地用作文化和创意产业。重建项目原址需要一个综合性的发展框架和对于污水处理的着重关注。通过对该区域的水系统转型应使得该区域由一个严重污染区域,转变为了一个多功能的公园并且可以实现自净和组织周边地表地下水资源遭到污染和破坏,为了达到这个目的。每一滴周边的雨水被收集起来,并且被运用到了灌溉和水循环净化的循环里。



Beijing Qinghe workshop

北京清河研讨会

照片由BIAD提供

其中,一片小型的区域被输送以可饮用水并被用于沐浴区来使用。现在,Westergasfabriekpark 为高密度的城市提供了一片绿洲。重建的工厂原址和公园的所在地块,对于阿姆斯特丹城市来说,都是非常宝贵的财富并且对周边的环境起到了积极价值。创意产业工作者在此工作设立公司、同时知名的音乐节等在此召开。Westergasfabriekpark 作为荷兰境内的开发改造典型,已经超越了荷兰范围,闻名于海外。

#### Case Studies as Westergasfabriekpark

At the end of the 19th century, the Imperial Continental Gas Association (ICGA) built two coal gas factory complexes in Amsterdam: the Ooster and the Wester Gasfabriek (Eastern and Western Gas Factory). Originally, the gas was used for street lighting.

By the time the factory shut down, the site was heavily polluted, making it difficult to find a new purpose for the area, as in several regions in Beijing. In the meantime the GEB, the municipal energy company used it for storage and as a workshop. From 1992, the buildings were used temporarily for creative and cultural activities. The redevelopment of the site demanded an integral approach and much care was given to the [polluted] water system. The water system in this transformation from a polluted 'no-go area' to a multifunctional park, needed to be self-sufficient in order to prevent the spread of polluted [ground]water to the surrounding area. In order to accomplish this goal, every drop of stormwater from the area is being stored in different places and used for irrigation and filling of the water system [Boogaard F.C., 2014]. A small area is used as a bathing area which is filled with drinking water of high-quality. Nowadays, the Westergasfabriek is providing a green oasis in the urban dense area. The redeveloped factory site and the laid out park are an asset for the local area and have a positive effect on the value of all buildings around it, making the construction of the park a valuable asset for Amsterdam. Creative entrepreneurs work in the renovated historic buildings and many high-profile events and festivals are held here. The Westergasfabriek is regarded as a model for redevelopment, far beyond the Netherlands' borders.

#### “迈向2050”北京清河研讨会

一系列的试点案例被作为国际经验于北京“迈向2050”研讨会上被提出。荷兰、中国以及相关经验在北京被提出和分享。使用这些最佳管理措施 (BMPs) 被证明是在基于针对北京2050年发展规划基础上可以刺激经济高效发展为主的综合性战略。

#### 'Towards 2050' Beijing Qinghe workshop

A number of pilot cases have been used in the international knowledge exchange in Towards2050 between the Netherlands and China, and has resulted in an integrated strategy to meet the urban challenges in Beijing. Using these best management practices (BMPs) has proven to stimulate the development of a cost effective nature-based integrated strategy for Beijing 2050.



Beijing, Qinghe and surrounding area

北京清河沿岸地区情况

图片由BWIC提供