Adaptation VS Obsolescence. Cities and the Climate Change Challenge

适应还是废弃，城市与气候变化的挑战

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The risk associated with climate change is no doubt one of the biggest challenges facing cities. Cities make a huge contribution to climate change, being the main source of emissions of greenhouse gases, but also it is in the cities that its negative impacts of climate change are felt most acutely. These include heat island effects or water and food shortages, but the most alarming is probably the risk of flooding as a result of increasing precipitation, extreme weather and sea level rise. Flooding may obliterate parts of some cities altogether.

Historically, urbanisation tended to concentrate in coastal areas. The sea provided coastal cities with access to trade routes that helped build their prosperity. Today, many of the iconic coastal cities, like Venice, Amsterdam, New York, Hong Kong, or Shanghai, host unique architectural heritage, an immense concentration of capital and real estate assets, and, most importantly, large populations. They have to cope with growing risk of flooding or the prospect of being partially engulfed by the sea by the end of this century. Thus, the 'ageing' coastal metropolises may end up becoming obsolete, with businesses and people moving out of them to safer higher ground.

与气候变化相关的风险无疑是城市面临的最大挑战之一。城市对气候变化的影响深远。城市不仅是温室气体排放的主要来源，而且气候变化的负面效应在城市更为显著。这些影响包括热岛效应，水和粮食短缺。但最令人担忧的或许是由降水量增加，极端天气和海平面上升所引发的洪水风险。洪水可能会彻底毁坏城市的某些部分。

从历史上来看，城市化往往集中在沿海地区。海为沿海城市提供了构建繁荣的贸易路线。今天，许多标志性的沿海城市，如威尼斯，阿姆斯特丹，纽约，香港或上海，都拥有独特的建筑遗产，庞大且集中的资本和房地产资产，而重中之重是其巨大的人口。这些城市必须应对日益增加的洪水风险，甚至是本世纪末即将被海淹没的前景。因此，“老化”的沿海大都市可能终将被废弃，资本和人将迁移到更安全的高地之上。

Figure 1. Hong Kong - Kennedy Town's waterfront heavily exposed to coastal flooding (photo taken by the author)

图 1. 香港 - 坚尼地城滨水区面临沿海洪水的威胁（笔者）

Figure 2. Rotterdam - View over river Maas towards unembanked areas of Kop van Zuid (photo taken by the author)

图 2. 鹿特丹 - 马斯河岸堤防之外的 Kop van Zuid 景观（笔者）

Preventing the worst effects will require adapting to the future impacts that already seem inevitable. This is particularly challenging for 'ageing' cities with rich architectural heritage. Upgrading the existing flood defences that protect them will require huge costs and additional space to accommodate wider dikes and create more room for excess water. However, considering the historical, cultural and monetary value of the existing buildings and infrastructure, there is a need to find innovative engineering, design and planning solutions to improve the level of flood safety in line with the growing risk. This should avoid demolition or relocation of the historical urban fabric, which would be massively expensive and socially unacceptable.

Such innovations require a double shift. First, a shift away from the predominant (and 'ageing') approach to flood risk management in cities that focuses only on civil engineering and hard infrastructure. Second, a governance shift is needed towards closer collaboration across administrative boundaries, scales and the different actors operating in cities, including urban planners and designers, civil engineers, heritage and environmental experts, scientists, businesses and local communities. These transformations, however, remain hampered by conflicts of priorities and other difficulties typically associated with working across administrative, policy, and sectoral silos.

未来的发展趋势似乎已不可避免，因此我们需要适应这种趋势以防止气候变化的最坏影响。这对于拥有丰富的建筑遗产的“老化”城市特别具有挑战性。升级现有的防洪措施将需要巨大的成本和更多的空间，以适应更宽的堤坝和创造更多的水空间。然而，考虑到现有的建筑和基础设施的历史，文化和经济价值，有必要探索革新的工程，设计和规划解决方案，以提高防洪安全的水平，适应不断增长的风险。这过程中应该避免毁坏历史城市的肌理，否则将付出经济和社会的巨大代价。这种创新需要两个方面的转变。首先需要转变以主流的（和 ' 老化 ' ）的方式来管理城市的洪水风险，比如只注重土木工程和硬件基础设施。其次是治理转变，需要促进跨行政边界，尺度，和不同行动者之间更密切的合作。这些行动者包括城市规划师和设计师，土木工程师，文物和环境专家，科学家，企业和当地社区。然而这些转变仍然受到各方面冲突的重重阻碍，需要面对包括权重以及跨行政区域，政策和部门之间合作的困境。

Figure 3. New York - view on the Midtown Manhattan's skyline from Central Park (photo taken by the author)

图 3. 纽约 - 从中央公园看曼哈顿中城天际线（笔者）

NEW LIFE FOR AGEING CITIES

老化城市的新生

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Table of Contents

Introduction to the USE Joint Research Centre---------- Vincent Nadin, Lei QU 1

Infrastructures and Materials

Ageing of Materials, Structures and Systems---------- Klaas van Breugel 3
Structural Health Monitoring of Ageing Infrastructures---------- Cheng SU 5
Ageing of Concrete Infrastructure ---------- Rob Polder 7
Design and Optimization of Durable and Environment-friendly Blended Concrete ---------- Peng GAO, Yong ZHANG, Guang YE 9

Systems and Networks

Shenzhen II: Special Green Economic Zone (SGEZ)---------- Ronald Wall 11
Smart MicroCity---------- Ton Venhoeven 13
Housing in a Changing Society---------- Marja Elsinga 15

Past and Future

Yesterday's Cities---------- Paul Rabé 17
Varying Approaches to the Future of a Large Chinese "Ageing"City---------- Haohao XU 19
Planning and the Built Heritage in Ageing Cities ---------- Vincent Nadin 21
Beyond World Workshop: Re-profiling Chinese Cities in the Pearl River Delta (PRD)---------- Yawei CHEN 23
Sustainable Smart Resilient Low Carbon Eco Knowledge Cities: A Remedy for Urban Ageing in the Greater Pearl River Delta?---------- Martin de Jong 25

Planning and Governance

Planning Issues of China's Ageing Cities---------- Jianyun ZHOU 27
The Dilemma of the Chinese Planning System ---------- Dongjin QI 29
Governing Ageing Cities ---------- Ellen van Bueren 31
Irreversible Ageing of Cities---------- Feng YU 33

City and Society

Caring for the Elderly in Chinese Cities ---------- Li SUN 35
Urban Regeneration in Shenzhen in the Context of Migration---------- Lei QU 37
Regeneration of the Ageing Work-unit Housing---------- Jinghuan HE 39

City and Water

Adaptation VS Obsolescence. Cities and the Climate Change Challenge-- Marcin Dąbrowski 41
Rethinking Water Values for Urban Vitality---------- Yuting TAI 43
Creative Ageing in World Ports---------- Wim Ravesteijn 45

City and Architecture

Adaptability and Flexibility---------- Yimin SUN 47
Computational Design for Sports Buildings---------- Michela Turrin 49
More than Infrastructure Hubs- the Challenges for Railway Stations in Transforming Chinese Cities---------- Roberto Cavallo 51
Design of Educational Architectures under the Influence of Sunlight in South China---------- Yubo LIU 53

目录

城市系统与环境联合研究中心简介 ----------Vincent Nadin, 曲蕾 1

基础设施和材料

材料、结构与系统的老化 ----------Klaas van Breugel 3
老化基础设施结构的健康监测 ---------- 苏成 5
混凝土基础设施的老化 ---------- Rob Polder 7
耐久型和环境友好型复合混凝土的设计与优化 ---------- 高鹏 , 张勇 , 叶光 9

系统和网络

深圳 II: 绿色经济特区 (SGEZ)----------Ronald Wall 11
智慧微城市 ----------Ton Venhoeven 13
社会变迁背景下的住房问题研究 ----------Marja Elsinga 15

过去和未来

昨日之城 ---------- Paul Rabé 17
未来中国大城市“成长”的不同途径 ----------徐好好 19
老化城市的规划和建成遗产 ---------- Vincent Nadin 21
超越世界工厂 : 中国珠江三角洲城市转型 ----------陈雅薇 23
可持续智慧弹性低碳生态知识城：对大珠三角城市老化的拯救？ ----------Martin de Jong 25

规划和治理

中国老龄化城市的规划议题 ----------周剑云 27
中国规划编制体系的困境与建议 ----------戚冬瑾 29
治理老化城市 ----------Ellen van Bueren 31
不可逆转的城市老化 ----------喻锋 33

城市和社会

在老龄化城市中的老年人护理研究 ----------孙丽 35
移民背景下深圳的城市更新课题 ----------曲蕾 37
单位公房老化与改造 ----------贺璟寰 39

城市和水

适应还是废弃 , 城市与气候变化的挑战 ----------Marcin Dąbrowski 41
反思水在营造城市活力中的价值 ----------邰玉婷 43
世界港口的创造性老化 ---------- Wim Ravesteijn 45

城市和建筑

适应性和灵活性 ---------- 孙一民 47
体育建筑的计算式设计 ---------- Michela Turrin 49
超越基础设施的交通枢纽 - 火车站在中国城市变迁中所面临的挑战---------Roberto Cavallo 51
华南地区日照影响下的教育建筑设计 ---------- 刘宇波 53