

# LA CHINA 景观设计学

LANDSCAPE ARCHITECTURE CHINA

北京大学景观设计学研究院 主编 2010 No.3  
黑龙江科学技术出版社 出版 06月20日

总第11辑

本  
辑  
主  
题

适应气候变化的景观设计

Landscape Architecture Adaptive to Climate Change

上升的海平面：应对气候变化的纽约滨水区项目规划  
——纽约市设计师团队在MoMA展示的5个方案

Rising Currents: Projects for New York's Waterfront to Respond  
to Climate Change

——5 Showcases of MoMA Exhibition by Teams of NYC  
Architects

再造秀美山川：国土资源部总规划师胡存智关于景观设计学  
与创新土地利用总体规划的讲话

Reconstruction of Enchanting Mountains and Rivers: Speeches  
on Landscape Architecture and Innovative Master Plan for Land  
Use from Cunzhi HU, Chief Planner of the Ministry of Land and  
Resources

一起去日本——“城市景观之路”2010樱花季日本景观考察

Tour Japan with you——the Way of Urban Landscape, 2010  
Study Trip of Japanese Landscape

ISBN 978-7-5388-6386-4



ISBN 978-7-5388-6386-4/TU.658  
定价 RMB 48.00  
HKD 100.00 TWD 400.00  
USD 20.00 EUR 16.00



At a conceptual level, the idea of anthropogenic climate change represents a significant shift in our understanding of Nature. It supposes that humans can, in fact, transform natural systems on a global scale, and it thereby makes our world seem smaller—from seemingly boundless to fragile and contained—by drawing attention to global limits. In that regard, recent attention to climate change generalizes an awareness first made manifest four decades ago through widely-disseminated photographs of Earth as seen from outer space, images in which global Nature was objectified as beautiful, luminous, gently swirling, and tenuously balanced—a liquid sphere circumscribed by the desolate black of deep space.

Because of the current disparity between physical and conceptual impacts, climate change is popularly framed as a matter not of life but of lifestyle—that is, not of survival but of how we choose to live. In keeping with that situation, climate change has become a marketing strategy—yet another way to sell a wide range of products and services, from automobiles and cleaning products to computers and food. Instead of hard choices, people are presented with soft options keyed to patterns of consumption—for example, “reducing your carbon footprint” by purchasing a more fuel efficient automobile. If some of the more dire predictions about climate change come to pass, we can expect that this sort of “responsible” consumerism will soon seem trivial at best.

LAC: Should we adapt to climate change passively, or take the initiatives to change it?

David L. HAYS: This question asks how best to mitigate the impacts of climate change: should we accept it as a new normal and respond accordingly, or should we attempt to affect it directly through planned interventions? The first option frames anthropogenic climate change as a new natural, a condition to which we can only respond, as if it were beyond the scope of human impact. (Ironically, of course, anthropogenic climate change is conditioned by human impact.) The second option supposes that we have both the capacity and the requisite knowledge to affect climate change without creating larger environmental problems. To address the effects of climate change, it goes without saying that we should proceed responsibly. Solutions that address problems at their source seem inherently superior to those that merely cope with consequences. But we should also be aware that agency over natural systems and processes entails enormous liabilities and responsibilities.

LAC: Climate change has become one of the political and economic hot topics all over the world. What is your view on this? Do you think the guidance of public opinion will affect people's adaption and solution to it?

David L. HAYS: When people do not know what to talk about, they often talk about the weather, a topic traditionally considered safe for discussion because, as a function of natural forces, it seems both apolitical and a universally shared concern. Historically, weather has also been a great social unifier at communal and territorial scales. Like a common enemy, adverse weather events help people structure a sense of shared identity, and fine weather is received as a sign of collective good fortune or divine benefaction.

Those conventional understandings are now being undermined by the idea of anthropogenic climate change. Weather is becoming increasingly politicized, and weather events related to climate change have the potential to exacerbate tensions between social groups. Speculations about the causes of climate change have already led to finger pointing; for example, excessive rainfall in one region is blamed on environmental pollution in another. Accordingly, international efforts to address climate change will require agents to see past political differences and short term economic concerns and to adopt a collaborative approach. Recent initiatives involving transboundary nature preserves and peace parks provide a useful model for such efforts.

LAC: Landscape design adapts to the climate change is one of the frontier topics, why and when do you become interested in this subject?

David L. HAYS: My work focuses on the ability of building systems to adapt to shifting environmental conditions. More specifically, it engages the natural dynamic properties of building materials in order to structure more sustainable, analog approaches to the design of adaptive building systems. Grounded in basic physics, those mechanisms

draw upon shifting environmental energies and move responsively, without need for digital sensors, computation, or motors.

I first became interested in this approach through my graduate study of architecture. Good performance in architecture has conventionally meant resistance to change, including environmental impacts, but buildings—like landscapes—are not static entities. Inflected by environmental energy, their components are constantly moving, and the forces involved are considerable. To defuse the impact of dimensional shifts, buildings are assembled with minimum restraint according to principles of structural design. In contrast, my approach inverts the logic of structural design by exploiting deformations, exaggerating their implications, and projecting new outcomes. That approach gauges performance in terms of responsiveness to change, building on a model of navigation borrowed from the theory of landscape architecture.

LAC: It's said that climate change is not simply a problem to be confronted, but an opportunity to be seized. What is your view on this?

David L. HAYS: Designers have long framed adverse situations as opportunities, so the significance of this statement pertains specifically to climate change and its implications for urban design. With that said, the meaning of Bergdoll's statement depends in large part on the values of those empowered to effect change. For whom is climate change an opportunity? Who is responsible for seizing it? And to what end? Even in the best of circumstances, urban transformation is a complicated business with clear winners and losers.

LAC: Do you believe the landscape design could mitigate the climate change?

David L. HAYS: As traditionally practiced, no. But the scales of landscape architecture have expanded significantly, as have expectations of landscape architects. Landscape architects are being trained in ways that make them increasingly effective at addressing large-scale environmental problems, including those related to climate change. Also, growing numbers of landscape architects are operating beyond the traditional limits of site design—for example, through strategic planning and policy development. In that way, they are having valuable impacts at metropolitan and regional scales.

LAC: According to IPCC, it predicts the potential effect of climate change, such as changes of ecosystem and coastline. What could the landscape architects do in response to climate change?

David L. HAYS: Among design professionals, landscape architects are arguably the best prepared to deal with effects of climate change. They are already making significant contributions in the areas of green and “soft” infrastructure. As noted above, landscape architects are also engaging in strategic planning, policy development, and other powerful tools that allow them to impact landscapes far beyond the scale of traditional practice. The latter will likely prove invaluable in structuring responses to climate change.

LAC: Climate change will lead to more emphasis on the ecological functions of landscape, which probably leads to an era of the ecological value overweighting the aesthetic value, do you think so?

David L. HAYS: Ecological function became a leading concern in landscape architecture in the late 1960s, in large part through the influence of Ian McHarg and his book, *Design with Nature* (1969). From that time until the late 1990s, ecology and aesthetics were frequently framed as oppositional concerns, but that division has always seemed false. Aesthetics is never independent of culture, even when projected as superficial. During the past decade, ecology and sustainability have become widespread cultural concerns, with implications for contemporary aesthetics in landscape architecture and many other fields. Consequently, I do not see ecology and aesthetics as antagonistic. Far from overwhelming aesthetics, ecological priorities are helping to redefine aesthetic values, and that trend can be expected to continue during the decades ahead.

LAC: In the context of climate change, could you imagine the future of urban form?

David L. HAYS: Yes, but I'm keenly aware that visions of the future are always a function of the present, and our understanding of climate change is still evolving.

With that said, I am concerned about the lush, playful quality of many contemporary representations of future urban form as affected by climate change. In graphic transformation scenarios, buildings and other components of urban infrastructure disappear as if by magic, with no accounting for what would be massive social, economic, and environmental impacts—for example, loss of housing and employment. Instead, we see green overlays (e.g., green roofs, urban agriculture) and people engaged in recreational activities (e.g., kayakers exploring a reconfigured waterfront). With their dream world qualities, such images are situated somewhere between science fiction fantasy and views promoted by real estate developers. They remind me of geographer David Harvey's criticism of the Groundswell exhibition (2005) at the Museum of Modern Art, New York City; as Harvey noted, transformation of former industrial sites into urban parks made it seem as if heavy industry had disappeared altogether when, in truth, it had simply migrated to a different part of the world, along with many attendant problems.



**弗里茨·海格**：建筑师，关注于可食用花园的建造与推广，以及园艺、舞蹈、表演、设计、生态及建筑等多学科综合的创作，其代表作品“动物家园”入选2008年惠特尼双年展。

**Fritz HAEG**: Architect, who mainly focuses on the building and promoting of the Edible Gardens while the work spans a range of disciplines and media including gardens, dance, performance, design, ecology and architecture, and one of the representative work, *Animal Estates*, debuted at the 2008 Whitney Biennial.



LAC: 您认为气候变化对我们现今的生活有何影响?

弗里茨·海格：显然，有些人群将较早地遭受气候变化的灾难性影响，他们所遭受的灾害也会比其他人群更严重一些——讽刺的是，以美国为例，那些最应该对气候变化负责的人反而最能够免受气候变化的灾难性影响。

LAC: 我们是应该被动地适应气候变化，还是应该主动应对?

弗里茨·海格：我从事的所有工作都是在积极地思考并参与社区、城市、

社会和其中的困境中去。我们不能坐以待毙。

LAC: 气候变化已经成为全球政治和经济的热门话题，您对此怎么看？您认为引导公众是否会影响人们对气候变化的适应情况和解决方法？

弗里茨·海格：我认为解决气候变化问题的方法不一——答案不唯一，解决方法也不唯一——这要求大家同时在多个层面共同努力。大到国家政府和跨国公司自上至下的决策，小至每个人自上至下适度的创新和转变行为，这两者缺一不可。

LAC: 有人曾说，气候变化不只是我们面临的挑战，也是需去把握的契机。您对此持什么观点？

弗里茨·海格：我认为有一点对我们来说很重要，那就是清楚地问问自己：“如果没有气候变化，我们理想的城市、家园和生活是什么样的？”——我坚信如果我们坚定内心的理想，并以此为目标始终如一地努力，我们不仅能够解决气候变化问题，还能够解决其他任何社会问题和环境问题。我不想因为气候变化而改变我们的文化、城市和行为——气候变化不过是社会运转不畅导致的一个小毛病——我们要寻找一种真正充满意义的生活乐趣，这种生活乐趣使我们彼此之间，以及我们与周边环境之间重新联系起来——例如在我们生活居住的地方进行简单的食物种植。

LAC: 您认为景观设计能否减缓气候变化？

弗里茨·海格：人类行为和活动的各个层面都能减缓气候变化——气候变化和我们生活的每个方面都息息相关。

LAC: IPCC预测了气候变化的潜在影响，例如生态系统和海岸线的变化。对于应对气候变化，您认为景观设计师能做些什么？

弗里茨·海格：同样地——答案不只一种。我认为所有的景观设计师都应该扪心自问：“如果一处景观损害了人们的身体健康、造成了环境污染、滥用了珍贵资源、危及了野生动物和它们的栖息环境，那么我还能认为此处景观很美吗？”这个问题很耐人玩味，也很紧要迫切。我们应该重新考虑什么是美——对大多数人来说，我们应该对城市中一定程度的自然野趣感到舒适——要扩大我们对景观的理解。

LAC: 气候变化将使景观的生态功能备受重视，这很可能导致一个生态价值高于美学价值的新时期，您如何看待这种趋势？

弗里茨·海格：这不是生态问题和美学问题之间的权衡，不是二选一的抉择，生态与美学本就息息相关。如果我们见多识广，我们会认识到那些造成永久破坏的刚愎自用的浪费行为和污染行为毫无美感可言。

LAC: 在气候变化的大背景下，您能设想一下未来的城市面貌吗？

弗里茨·海格：我们设计的城市景观将更加贴近自然、更具生产性。（柳吉祥译，田乐校）

LAC: From your perspective, what does the climate change do to our lives nowadays?

Fritz HAEG: It is obvious that some populations will experience the disastrous effects of climate change earlier, and more extreme than others - and ironically, it is exactly those, in the USA for example, who are most responsible for creating the situation that will be most able to insulate themselves from the effects.

LAC: Should we adapt to climate change passively, or should we take the initiatives to change it?

Fritz HAEG: All of my work is about being active, questioning, and participating in our communities, cities, society, and the situations we have inherited within them. There is no room for passive acceptance...

LAC: Climate change has become one of the political and economic hot topics all around the world, what's your view on this? Do you think the guidance of public opinion will affect people's adaption and solution to it?

Fritz HAEG: I believe that there is not one correct way to approach this issue - there will be no one answer, or particular approach that will solve it - it will require many people responding in many ways simultaneously. This must include both massive top down strategies from the largest governments and multi-national corporations, and bottom-up, with relatively modest ideas, innovations, and behavioral shifts among everyone.

LAC: Someone said that Climate change is not simply a problem to be confronted, but an opportunity to be seized. What's your view on this?

Fritz HAEG: I think it is important for us to ask ourselves very clearly: "If there was no climate change, what would our ideal cities, homes & lives look like?" - and I very strongly believe that if we remain completely true to that as a goal - we can solve, not only climate change, but any other social or environmental problems. I do not want to change out culture, cities, and behavior because of climate change - that is just a little symptom of a sick society that is not working - but instead looking for really meaningful daily pleasure that reconnects us to each other and the environments around us - such as the very simple activity of growing food where we live.

LAC: Do you believe the landscape design could mitigate the climate change?

Fritz HAEG: EVERY aspect of human behavior and activity can mitigate climate change - it's totally embedded in everything.

LAC: According to IPCC, it predicts the potential effect of climate change, such as changes of ecosystem and coastline. What could the landscape architects do in response to climate change?

Fritz HAEG: Again - I don't see one answer. I think the most interesting and urgent question for ALL landscape architects to ask themselves is:"Do I still think a landscape is beautiful if I know that it is also making people sick, polluting the environment, abusing precious resources, and destroying wildlife and their habitat?" Our ideas of beauty need to be reconsidered - and most of all, we need to become more comfortable with a level of wildness in our cities - loosening our grip on the landscapes we create.

1-2. 弗里茨·海格推广的可食用花园

1-2 . The Edible Gardens promoted by Fritz HAEG



LAC: Climate change will lead to more emphasis on the ecological functions of landscape, which probably leads to an era of the ecological value overweighting the aesthetic value, what do you think of this trend?

Fritz HAEG: This is not the trade-off, it is not a choice between ecological issues and issues of beauty - they are totally related. As we become more sophisticated - we will recognize that designs that perpetuate primitive destructive domineering wasteful polluting behavior are not pretty.

LAC: In the context of climate change, could you imagine the future of urban form?

Fritz HAEG: All of the landscapes we create in our cities will be more wild and more productive.



**陈显尧**：中国海洋局第一海洋研究所研究员。

**Xianyao CHEN**: Research investigator of The First Institute of Oceanography, State Oceanic Administration of China.

LAC: 您认为气候变化给我们的现今生活环境带来了哪些影响?

陈显尧：环境是一个内涵非常丰富的名词，我想这里主要谈的是我们所生活的自然环境。自然环境包括大气环境、水环境、土壤环境、生态环境和地质环境等要素。气候变化对这些要素的影响是非常显著的。

首先，我们最直接感受到的气候变化的影响是温度的变化。过去几十年来，我们的历史最高温记录不断被刷新，全球温度不断升高；而同时，原本该是温暖天气时的低温记录也在不断地刷新。我们对于天气温度变化的感受是最深的。其次是水循环。水循环是一个科学名词，其中老百姓感受最直接的是降雨的变化。近年来，全球的大雨次数增多，但是细雨次数显著减少，这对水土保持有很大影响。而在我国，1998年那场全国范围内的洪涝灾害、2008年初南方地区的雪灾、今年西南地区的持续干旱，都凸显出气候变化对我们所生活的自然环境的巨大影响作用。

但是，我认为这里要强调一个概念问题，就是我们在谈论气候变化对自然环境的影响时，不要把所有环境变化的问题都归咎于气候变化。事实上，现在可能在很多国家已经有了这种趋势。借用一位美国气候学家的话：在过去一段时间里面，我们气候学家一直stand by（旁观着）各种政府和非政府组织一点一点地把环境变化的问题归咎于全球气候变暖的长期影响。我想，气候学家应该stand up（站出来），去把这些问题说清楚，哪些是环境变化的问题，哪些是气候变化的问题，不能再混淆。

我想仍然引用这位美国气候学家所介绍的例子：近些年来，印度人口不断增长，为了维持人民的生活水平，印度大量使用化肥来增加粮食产量，但是过多地肥料导致河流和湿地的污染，也影响了土地的再利用率。而为了在旱季也能保持粮食的产量，大量使用地下水灌溉，直接导致河床下沉。这些问题与气候变化没有关系，是人类自身活动对环境所造成的影响。

当然，如果采用联合国气候变化框架公约（UNFCCC）所定义的气候变化，即：“A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.”（指除在类似时期内所观测的气候的自然变异之外，由于直接或间接的人类活动改变了地球大气的组成而造成的气候变化），那么把人类活动对环境的影响归咎于“气候变化”就显得“自然”了，但这并不是好事。因此，我个人仍然觉得IPCC所定义的气候变化更为合理：“A change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use.”（气候变化是指无论基于自然变化抑或是人类活动所引致的任何气候变动）。

LAC: 您认为现在不断出现的极端天气是否属于正常的气候变化?

陈显尧：首先需要说明这里我所说的气候变化采用的是IPCC的定义。在此基础上，我认为近年来频繁出现的极端天气是气候系统正常的变化过程。这些被称为“极端”天气的现象过去曾经发生过，未来也会再次发生。而现在之所以被称为极端天气，是因为它过分地偏离了人类有观测记录以来的气候平均状态。我们界定自然变化的过程正常或异常时，会事先取一个平均值。如果现在的状态偏离这个平均值太远，就可以说现在的状态是一种极端状态。但是，气候系统是不断变化的，不同时间内的平均值各不一样，所以正常的或异常的变化需要在一个时间段内来界定。举个例子来说，在地球过去6 000万年的历史里，我们现在正处于最冷的时期，与恐龙灭绝时期相比，我们的地球现在非常冷；但是如果和冰河期相比，地球现在又很暖和，从南极的冰芯估计，我们现在的温度比冰河期要高10℃左右。因此，现在不断出现的极端天气现象很可能是气候系统长期变化过程中必然出现的现象。当然，我们需要加强研究来确定人类活动是否对这些现象的频繁出现有决定性的影响。

LAC: 您认为当前的这种气候变化是人为因素，还是自然周期性的正常波动?

陈显尧：两个因素的作用都存在。但是，我们现在仍然不能确定人类活动因素和自然变化因素的影响究竟各占多大的比重。气候系统是一个非常复杂的系统，这里1加1不一定等于2。我相信人类的活动会对气候系统产生影响。人类是伟大的，工业革命之后的百年来，人类活动已经显著地改变了我们的生活环境和自然环境，但是对于人类活动能否改变气候这个问题，我觉得现在下结论还为时尚早，虽然IPCC第四次评估报告已经下结论：“自20世纪中叶以来，大部分已观测到的全球平均温度的升高很可能是由于观测到的人为温室气体浓度增加所导致。（Most of the observed increase in globally averaged temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations.）”。“Very likely”（很可能）不是一个科学的措辞，这种模棱两可的结论很容易导致不同的解读。而我个人的看法是质疑、甚至是否定的。我认为IPCC过分夸大了人类活动的影响。

其中一个例子最为明显，观测数据显示过去一百多年来，地球温度有一个周期约为65~70年的震荡过程。但截至目前，IPCC报告所采用的数值模式还很难模拟出这个震荡周期。显然基于这样的数值模拟分析结果所得到的结论是值得质疑的。我们现在投入了很大的力量在做这方面的研究，期望能够合理地区分人类活动和自然变化对气候变化的贡献。但是，我们目前的观测数据长度和数量对于认识气候系统来讲太短暂了。人类有天气观测记录的历史不过150余年，其中较为有价值、有代表性的数据记录不足100年。通过这么短暂的观测，我们无法确定气候系统本身的一些周期性震荡，也就更无法确定人类活动是否会产生一些决定性的作用，我想这可能是需要倾一生之力去做的事情。

此外，不知大家是否了解，IPCC评估报告的结论是通过举手表决来确定的。气候系统是复杂的，有高度的不确定性，但是这种不确定性不能通过少数服从多数的方式来解决。

LAC: 您认为人类需要被动地适应这一境况，还是应该主动地去改善?

陈显尧：无论是“适应”还是“改善”，人类都是主动的。我们现在对于气候系统的认识还很不完善，特别是人类活动到底有多大作用，是通过怎样的过程影响气候变化的，我们都还不清楚。这时我们该怎么做呢，有一个很生动的例子：将气候系统比喻成一只大猩猩，你轻轻地去捅捅它，它没反应；你再捅捅它，还是没反应；你可能想要再轻轻地捅它一下，或再狠狠地捅它一下，可你不知道它随后会有什么反应。有什么可以确保这只大猩猩不发怒呢？答案就是别再去捅他。所以说，在我们还不确定人类活动如何影响气候变化时，合理的做法是主动地适应气候变化。

至于主动地改善气候，我还是要重复我前面所说的，人类是伟大的，但我不认为人类有能力改变气候系统的长期变化趋势。但我们能够通过主动地减少温室气体的排放、减少对环境的污染等行动，来改善我们的生活环境。

LAC: “气候变化”已成为全球性的政治、经济热点话题，您如何看待此现象？您认为这一舆论导向对人类解决或适应这一变化问题是否会产生影响？

陈显尧：当气候变化问题和政治、经济甚至和国家利益联系在一起时，它就不仅仅是科学问题了。这里面有社会问题，更重要的是经济利益问题。发达国家和地区在新型能源技术、能源及碳交易等领域占有全球性的优势，这些技术不会免费给发展中国家。而在科技和经济不发达国家和地区，比如一些岛国，他们在气候变化中受到的影响很大，但他们自己无能为力，人力、物力、财力也都不允许他们去做这么浩大的工程。他们就需要向发达国家寻求帮助，寻求资金和技术支持。这个过程中，双方就会产生利益冲突。气候变化的问题就被这样转移成了和经济利益挂钩的复杂的事件。

LAC: 根据IPCC的报告，一些系统和行业已经受到了气候变化的影响，而这些领域正是景观行业的设计对象，比如水、生态系统、海岸线等，您认为景观师应该如何处理这些影响？

陈显尧：我对景观设计的了解不多，我只想简单谈一些我个人的感受。景观设计是一门综合了自然科学、工程技术、人文与艺术科学的应用科学。从自然科学与工程技术的角度上讲，高科技手段越来越多地应用于景观设计，对此我有两个建议。一个是大家天天都在讲的——节能，另一个是我