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未来景观设计实践的维度

Dimensions of Future Landscape Architectural Practices

摘要 ……

当前的景观建造手段和不断变化的当代环境这二者之间的关系可以用于探究景观设计的实践活动。技艺必须具备可操作性，在建成景观作品的实施过程中，生态、经济、文化和环境的维度会随时间而演变，为学术界和执业者所推动的有关当前设计的不确定性、开放性和流动性等问题提供一个不同寻常的景观焦点。本文基于作者过去数年在景观设计创造过程中所积累的时间和技术方面的心得，对景观设计实践进行了阐述。本文指出了景观设计中的机遇与挑战，并通过由作者创立的哈佛大学设计学院技术与环境研究中心的实践项目对这些机遇和挑战进行了探讨。尤其在新场地技术的潜能方面，本文通过位于欧洲、非洲和中东地区的场地设计案例研究，对景观材料方面的新兴领域和再生工程的本质进行了阐述。

关键词 ……

景观设计学；场地建造；技艺；创新景观技术；工程修复

Abstract …

Landscape architectural design practice is explored through the relationship between current landscape construction approaches and the evolving contemporary environment. Techne acknowledges workability and the durable ecological, economic, cultural and environmental dimensions within the implementation of built landscape work over time and can offer an alternative landscape focus to the current design concerns of indeterminacy, openness and flux currently advanced by academics and practitioners. This paper represents landscape design practices based on the ideas of time and techne in the making of landscape architecture developed by the author within the past several years. Opportunities and challenges are outlined and discussed through practicum work of the Center for Technology and Environment (CTE) at Graduate School of Design of Harvard University founded and led by the author. In particular the potential of new site technologies, an emerging range of landscape materials and the nature of regeneration engineering are delineated through site design case studies located globally in Europe, Africa and the Middle East.

Key words …

Landscape Architecture; Site Construction; Techne; Innovative Landscape Technologies; Engineering Remediation

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1 引言

“设计不是仅关注产品的外观和感觉，而是关乎其如何运作。”

——史蒂芬·乔布斯^[1]

本文的主题涉及景观设计学和设计实践领域中的未来挑战和维度。在本文中，我选择了一个罕用的词汇——“Techne”（技艺）^①。这个词源于古希腊语“Tékne”，具有多重含义，正如其发音一样莫衷一是。“Techne”一词通常被译作在生产某种物品的过程中所采用的理性方式，或“手艺”、“手工”、“艺术”，抑或“有关艺术及其如何运作的

基本原理”^[2]。尽管其基本含义之一是制作某物或做某事的执行过程，而这与工匠或设计师对之的简单理解截然相反。在此，我想用“Techne”这个词来倡导一种审视景观设计未来的方式。通过这种方式，景观设计师现在以及今后能够在他们的设计作品中更多地关注由景观施工工艺发展而来的应用理论和实践，景观材料的真实性，以及那些能够创造可经受时间考验的、具有人文特色的场地和空间的现代工艺。这种设计方式的基础是一种哲学思索，包括在行动前对景观、场地和人的本质进行思考；从时间的维度对世界方方面面进行重建的人文思想；以及——正如本文之初所引用的史蒂芬·乔布

^①

“Techne”和“Tectnoics”被用在有关建的写作和语境中，用来描述与古代及当代构思建的方法有关的，建形式和结构的形成和制造行为，德米特里·波菲里奥斯和近来肯尼思·弗拉姆顿教授的著作就是其中的例子。然而，这些词语尚未被应用于有关景观设计建造的写作、理论或教学中。为了填补这种认知空白，笔者最近正与阿利斯泰尔·麦金托什进行一项研究项目，并在合作撰写——《技艺：城市景观建造中的应用理论和实践》。

1 Introduction

“Design is not just what it looks like and feels like, Design is how it works.”

— Steve Jobs^[1]

The topic of this paper is concerned with future challenges and dimensions of the field of landscape architecture and design practices. In this paper I have chosen a rarely used word — “Techne”. The word originating from the ancient Greek “Tékne”^① is at once varied in meaning, as it is ambiguous in tone. Techne is often translated as the rational method involved in producing an object, or “craftsmanship”, “craft”, “art” or “the knowledge of the principles of the art and how it works”^[2]. Although one of its primary intentions is in the execution of making or doing of things as opposed to just a simple understanding of it by the artisan or designer. I want to use the term — techne in this context to herald a way of looking to the future in landscape architecture, a means by which landscape architects can focus their work on the applied theories and practices arising from the workmanship of landscape construction, the authenticity of landscape materials and the modern craft of creating durable humanistic places and spaces in the present and for the future. The basis of this approach to design is philosophical reflection on the nature of landscape, place and people then action, the humanistic idea of an all-inclusive re-construction of the world in time and, as the Steve Jobs quote that opens the paper notes — “how it works”.

2 Short Discourse on “Techne”

One of the greatest tensions faced in professional landscape practice today, but one that has always had to be addressed in the history of the field, is the oscillating movement between the breadth and depth of landscape knowledge to be addressed by the individual landscape architect or collectively by landscape design teams. In addition the constructed reality of landscape design in time at all scales of endeavor which for the author is the touchstone of landscape architecture is undeniable and today brings with its new geographic and environmental circumstances of sites- terrafirma and terra-infirma^②, evolving design practices often in conflict with one

another, for example between conservation and redevelopment approaches and between short term and long term programs and length of site occupation. No matter how much we may believe in the endless ability of landscape architects to adapt and plan for physical growth over time there is the need to continue to accumulate or develop new tools and technologies in order for example, to examine, test and legitimize the interaction of landscape site design, water processes and people, bioengineering construction and civic space, climate change engineering security and regenerating resilient landscapes, urban wilds and cultural programs or the synthesis of new categories of soils and recycled construction materials with landscape design forms and to transmit an understanding of them.

For the ancient Greeks the word techne signified all the practical daily activities such as agriculture, carpentry and weaving as well as aspects of what we now think of as landscape architecture such as earthworks, horticulture and silviculture as well as the actual physical results of such activities. Techne and its related term “technology” and “technique” were absent from considerations in the nineteenth century early field of landscape architecture and in the shaping and constructing of landscapes whether agricultural, civic or vernacular. The equivalent word used to denote these activities “mechanic” still belongs to a branch of the arts known as the “mechanic arts”^③ and has applied to actions that were considered pragmatic, industrial or thought of as useful to the individual and society at large. In addition these were contrasted with the high, creative or imaginative arts such as sculpture, painting and architecture that were known as “fine arts”. Thus the design and construction of a garden or a larger landscape was a mechanic art while the rendering of the same garden or landscape through a watercolor painting was considered a fine art. This established a duality between things and ideas, the ordinary and the ideal, between material and concept, making and thinking that continues to haunt landscape architecture as set of practices and as a knowledge base today. Later mechanic arts and fine arts folded together into the more neutral and broader defined word “technology” that can be defined as the entire body of methods and

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The words techne and tectonics are used in architectural writings and discourse to describe the shaping and making of architectural form and structure tied to ancient and contemporary methods of conceiving buildings, for example, in the publications of Demetri Porphyrios and more recently by Professor Kenneth Frampton. However they have not been applied to landscape architecture construction writings, theories or instruction. To remedy this gap in knowledge the author with Alistair McIntosh are currently undertaking a research project and writing a book manuscript titled “Techne: Applied Theories and Practices in Urban Landscape Construction”.

^②

The Author uses the word “terra-infirma” to denote landscapes or sites that by virtue of their previous human uses and programs are ill or polluted by toxic substances in the soils, groundwater and sediments. “Terra-infirma” stands in opposition to “terrafirma” as a commonly used term for solid ground suggesting the 'terra-infirma' land is unstable, suspect and corrupted.

^③

Leo Marx in his classic essay “The Ideas of Technology and Post-modern Pessimism from the edited volume Does Technology Drive History? The Dilemma of Technological Determinism” edited by Merrit Roe Smith and Leo Marx, Cambridge, MIT Press, 1994 defines “mechanic arts” as distinct from “fine arts”. The mechanic arts were the artifacts, knowledge and practices that were practical as distinct from the imaginative fine arts.

斯的观点——“其如何运作”。

2 浅谈“技艺”

如今，专业景观实践中所面临的最突出的矛盾之一——也是该领域有史以来一直被探讨的一个问题——即景观设计师个人，或景观设计团队一直在景观知识应该“广而不专”还是“专而不广”这个问题上摇摆不定。此外，景观设计建造实体会随时间而在各个尺度发生改变——在作者看来这正是景观设计的试金石——这一点是无法回避的，并在今天带来了有关场地稳定性^②的新地理和环境情形，导致实践经常相互冲突，例如：保护与再开发方式之间的矛盾、短期计划与长期计划的矛盾、场地占用时间长短的矛盾等。无论景观设计师在适应和规划随时间变化的空间发展这一方面拥有多么无限的能力，都需要不断追求工具和技术上的创新，从而对——举例来说，景观场地设计与水过程及人；生物工程建设和城市公共空间；气候变化工程安全及再生的弹性景观、城市荒野区及文化活动，或将新型土壤和回收利用的建 材料与景观设计形式相融合——这些关系之间的互动进行审视、检验并将之纳入正式考虑范畴，进而传达出一种对这些事物的理解。

在古希腊人眼中，“Techne”一词意味着所有实际的日常实践活动，如农业、木工和编织，以及我们现在所认为的景观设计的一些方面，如土木工程、园艺和造林，以及这些活动的实际成效。“Techne”及其衍生词汇“Technology”（技术）和“Technique”（技巧）与19世纪初期的景观设计领域，以及农业、城市或地方的景观塑造和建造活动并无关联。用来表示这些活动的“Mechanic”（手工的）仍属于艺术的一个类别——“手工艺术”^③，并被应用于那些实用的、工业化的行为中，或者被广泛地采纳于对个人和社会有实用的思想之中。另外，这与高雅的、富有创意或想象力的，被称为“美术”的艺术门类——例如雕塑、绘画和建——截然不同。因此，一个花园或更大尺度上的景观的设计和建造曾被视为“手工艺术”，而用水彩方式对同样的花园或景观所进行的描绘则可被视为一种“美术”。这在事物与想法、寻常和理想、材料和概念、制作和思考之间形成了对比，继而成为了今天困扰景观设计的一套做法和知识基础。后来，手工艺术和美术相结合，赋予了“Technology”一词更为中性的、宽泛的含义，该词可以被定义为

方法和材料的全部集合，通过“技术”，目标——特别是工业、商业或审美目标皆得到了满足，抑或可被理解为对这些方法和材料的应用。此外，在景观设计方面的著作及景观设计语言中，“Techne”一词几乎全然消失。此后，虽然该词曾在诸如建筑设计、工业设计等其他设计学科中得到使用，但它似乎在景观领域或景观设计中不再具有重要意义。与此同时，景观设计的焦点已经转变为对一个项目周期中的不确定性、开放性、流动性的设计与短暂关注，目前，地方和世界范围内的部分从业者及学术流派推动了这一趋势。这些对风格——在一定程度上是时尚——的关注都集中在特定的生态过程、城市化系统，以及通过新的数字媒体而进行的设计和表现方面。

然而，作为这些过程的一种延续，随时间而进行的变化正在消失。在这些过程中，场地、场所、气候、文化与材料的实际情况会对景观设计理念的纯粹性和意义产生影响。最终，我们可以说，景观设计可以提出任何理念，但只有通过景观技术知识和随时间推移的技艺，对景观进行塑造和重塑——由Seo Ahn Total Landscape景观设计事务所设计的韩国首尔仙游岛公园（图1，2）就是其中一例——即将理念处理并转化为确切的物质形式的作法方可称之为景观设计学。

3 关于景观设计、建造和技艺的进一步讨论

这些与景观设计学相关的过程使景观领域自然而然地认为景观体量可以不断增大，事实证明现在已很难阻挡这种看似必然的发展趋势。景观设计师在迅速做出整套设计解决方案的同时，也不得不去吸收庞大的关于生态、材料和规范等方面的新信息。在这个过程中，同样庞大的专业知识体系却在



② 笔者使用“Terra-infirma”一词来指那些因为原有人类使用和活动，而土壤、地表水和沉淀物受到有毒物质的侵害或污染的景观或场地。作为“Terra-infirma”的反义词，“Terrafirma”通常被用于形容稳固坚实的土地，而“Terra-infirma”则用来形容不稳定的、多变的和衰退的土地。

③ 里奥·马克斯在他经典的《技术理念与后现代悲观主义》一文（出自《技术决定历史？技术决定论之困境》，由梅里特·罗·史密斯和里奥·马克斯编著，1994年由剑桥MIT出版社出版）中，将“手工艺术”与“美术”分隔出来。手工艺术是指那些有别于富于想象的美术的，具有实用价值的工艺品、知识和实践。

1. 图为韩国仙游岛公园（1978~2000年间为市污水过滤厂）。技艺的表现与上下层的建造方式。景观设计：首尔Seo Ahn Total Landscape设计事务所。© Niall G. Kirkwood, 2010
1. Expression of techne and overlapping construction, Seonyudo Park, Seoul, Republic of Korea (formerly municipal water filtration plant 1978 ~ 2000). Landscape Architect: Seo Ahn Total Landscape, Seoul. © Niall G. Kirkwood, 2010

materials by which objectives, particularly industrial, commercial or aesthetic are met, or the application of those methods or materials. In addition the word, techne almost disappeared completely from the writings on landscape architecture and the language of landscape design. Since then, while it is found in use in other design disciplines such as architecture and industrial design it no longer appears to have significance in the landscape field or in landscape design. At the same time, the focus of landscape architecture has changed to the design and temporal concerns of indeterminacy, openness and flux over the life of a project currently advanced by certain practitioners and academic schools locally and internationally. These concerns of style and to some extent fashion are centered on certain ecological processes, systems of urbanism and their design and representation through new digital media.

What has been lost however is making over time as a continuation of these processes where the practical realities of site, place, climate, culture and material act on the purity and significance of ideas in landscape architecture. In the end it can be said that landscape design can propose any idea, but it is in the making and remaking of landscapes, through the knowledge of landscape technology, through techne over time, such as shown in the Seonyudo Park in Seoul, Korea by landscape architects — Seo Ahn Total Landscape (Fig. 1, 2) that we dispose and transpose ideas into a precise material form known as landscape architecture.

3 Further Thoughts on Landscape Design, Construction and Techne

The processes associated with landscape architecture have brought the landscape field naturally to think in increasing magnitudes. To resist this seemingly inevitable progression has proved difficult. Landscape architects press for blanket solutions in design and have to absorb a huge quantity of new information about ecology, materials and codes. In the process an equally large body of expertise has unobtrusively leaked away. What has gone is particular and unquantifiable information: How to qualify parts and make them significant? How to do specific things — for example, how to make connections? How to turn corners? How



to drain a surface? How to maintain a landscape?... Such information is difficult to transmit. It depends on a continuous interaction with skilled people of all kinds and this has quietly evaporated under the impact of linear progress. From even a fragment of a well-made landscape from any period, citizens receive immense satisfaction and a sense of the continuity of life over time. One way to approach landscape architecture moving forward is through site history and analysis — something that is increasingly overlooked. A focus on designs that reflect a deep study of the site will refocus landscape architecture on techne, and address how landscapes change over time. But what are the sources of physical design form in landscape architecture? The answer is other forms — physical and tactile — beit from high art, low art or no art at all. A work of landscape construction imaginatively transforms this material within a context shaped by the historically specific dimensions of: the individual sensibility of the landscape architect, cultural, social, professional and economic practices, and the geographic and topographic circumstances of a site. This is the essence of techne and the roots of a humanistic form of landscape design practice — one that accepts the nature of time and its unfolding as part of a larger set of concerns in landscape architecture. Coming to terms with the meaning of what one finds in a place through acts of landscape construction is not a plea for a slavish adherence to the design forms of the past. No landscape precedent can be appropriated uncritically and the historical inertia of inherited forms must be overcome by original design investigations. But neither can the designer just make a form, trusting to the “dark night of the soul” to transcend

2. 图为韩国仙游岛公园（1978~2000年间为市污水过滤厂）。通过景观技术知识与随时间而不断演化的技艺，景观得到了建造与重建。景观设计：首尔Seo Ahn Total Landscape设计事务所。© Niall G. Kirkwood, 2010
2. The making and remaking of landscapes, through the knowledge of landscape technology, through techne over time, Seonyudo Park, Seoul, Republic of Korea (formerly municipal water filtration plant 1978 ~ 2000). Landscape Architect: Seo Ahn Total Landscape, Seoul. © Niall G. Kirkwood, 2010

悄然流失。我们失去的是那些专门的、无法量化的信息：如何对行业的各部分进行限定，并突显出它们的重要性？如何做具体的事情——例如，如何对各部分进行连接？如何处理转角？如何处理地表排水？如何维持景观绩效？诸如此类的信息难以得到传递。这需要各类技术人才之间的持续互动，而这种互动在线性操作模式的影响下已悄然蒸发。无论在哪个时期，经过精心建造的景观，哪怕仅是其中的一个片段，都会令公众从中获得巨大的满足感和一种生活随时间变化的延续感。一个有助于景观设计学向前发展的方法是对场地进行历史研究和分析——而这些正逐渐被人们所忽视。对场地的深入研究将会使景观设计学重新聚焦于“Techné”，并思考景观如何随时间而变化。但景观设计学中的物质设计形式的来源是什么？答案是其他或物质或感知的形式，这些形式可以是高雅艺术、低等艺术，或根本毫无艺术性可言。景观建造是富有想象力地在一种由独特的历史维度形成的背景下——包括景观设计师个人的感知力，文化、社会、专业及经济实践，以及场地的地理和地形环境——对材料进行改造。这是技艺的精髓，也是景观设计实践人文形态的根源，建立在此基础之上的景观设计实践包含了时间的本质，其体现的是对景观设计学更大尺度上的关注。通过景观建造行为来展现场地的历史并非意味着盲目地延续以往的设计形式。没有任何景观的先例可以被不加批判地传承，传承下来的形式所具有的历史惯性也必须由对原始设计的调查来加以克制。但设计者也不只是在追求形式，而应相信“灵魂的暗夜”来超越传统的惯性，从而形成一种新的存在。必须认识到，任何景观设计语汇——例如古典、浪漫、现代、后现代、生态等，无论有意或无意，这些语汇都不可避免地过去、现在和未来有关，与通过了解艺术、设计和制造的历史来理解自然与文化有关。

景观设计师，特别是年轻景观设计师一味追求原创的强烈意愿和渴望，以及在材料尺度上景观的制造、建造和保护中对技术的忽视，使得注重观察、适应和演化发展的景观设计的传统过程逐渐被削弱。反思景观设计师在世界环境中所面临的巨大挑战和问题，如果要让景观设计领域在未来数十年中参与到应对这些问题的队伍中来可能会是一项艰巨的任务。然而在全球和本地竞争似乎随处可见的今天，这种广泛的环境和社会症结正是这个学科擅长解决的：景观设计的学术研究聚焦在这些方面，

越来越多的从业者将会被号召加入其中，而且未来景观设计专业的学生毕业后将会被要求投身于本专业领域。伴随着学科历史根源，以及对真正的创新性和创造力的持续需求所带来的新的紧迫感与潜在危机感，景观设计以及与景观和人类居住环境相关的设计领域将在新的世纪中不断发展，以解决当代景观规划与设计中的一系列问题，其中包括：

（1）在城市和城郊地区大尺度扩张的背景下，对满足质量要求、可施工性、意义和耐久性的景观的需求和愿望不断增加。

（2）寻找新的方式来应对过去在土地上发生的工业活动留下的遗产，从而指导当前和未来的工业活动——这些工业活动仍是经济增长和国家发展的支柱力量，在未来数年中也将持续开展。

（3）面对在全球气候、经济、社会、文化和环境变化中所带来的自然资源和生态可持续发展的紧迫压力。

过去的几年里，在世界主要经济领域从事实践活动的景观设计师们享受于参与具有最高知名度、经济价值和参与度的，以及复杂且不断变化的生态系统的国际性规划设计项目所带来的前所未有的机遇和曝光中。过去的几年对景观学科来讲，是一个充满挑战且要求苛刻的时期，而景观学科在源于过去200年或者更久远的设计和规划精华的传统基础上，处于不断的创新和进步当中。在大多数情况下，造成这种现象的原因在于景观设计从业者仍然普遍对某些特定的经济和生态不够重视，甚至对那些赋予了他们职业契机的世界重大变革也漠不关心。在掩饰和隐藏在这一景观设计活跃现象下更深层次的真理时，景观领域并未把握住其所拥有的技能、知识基础、方法、追求和侧重点的真正潜能，景观设计师本可以利用这些潜能来解决更大的社会、艺术、文化和智力议题，而非仅关注于单一的项目、独立的场地，或局限于单一的设计派别中——总而言之，景观设计师们并没有承认过技艺的重要性，更没有对其进行过深入研究，使之在景观设计重新展现出的关键作用中发挥效能。对这一代景观从业者（以及景观设计专业的学生）来说，这些来自全球和本土环境的挑战和制约因素是在不久的未来将要面临的难题——在全世界出现的大规模的自然干扰，集中于工业化、发展中国家的人口中心将继续增长，需要在更加偏远和敏感脆弱的土地上进行新的能源、水和物资的开采，因战争、污染、洪水等造成的人口流离失所和疾病

the inertia of tradition and in order to configure a new presence. It must be recognized that any landscape design vocabulary — classical, romantic, modern, post modern, ecological, are all inescapably engaged intentionally or not — with the past, the present and the future, with nature and culture understood through the histories of art, design and fabrication.

The traditional process of landscape design by observation, by adaptation and by evolution has been eroded today by the compulsion and desires on behalf of landscape designers, particularly younger designers, to be continuously original, and by the absence of techné at the material scale in the making, building and preservation of landscapes. Reflecting on the enormous challenges and problems that landscape architects face in the world environment, it may seem a difficult task for the landscape architectural field to make themselves relevant in the decades to come. Global and local competition of and in the environment may be seen as the order of the day, but this broad environmental and social malaise plays to the strength of the landscape discipline, it is where the intellectual life of the field lies, where practitioners will be increasingly asked to engage and where landscape students in the future will be required to work professionally after graduation. Landscape architecture and the accompanying fields of design related to the landscape and human settlement are constructing in this new century with a renewed urgency and an underlying sense of both the historical roots of the landscape discipline and the continued need for true innovation and creativity in addressing a number of contemporary landscape planning and design concerns. These concerns are as follows:

(1) The increased need and desire for new landscapes of quality, constructability, meaning and durability over time in the context of large-scale expansion of urban and suburban areas.

(2) The desire to find new ways to confront past legacies of industrial actions on the land and to direct current and future industrial activities that are still vital for economic and national growth and will be sustained over the coming years.

(3) To confront the urgent pressure on natural resources and ecological sustainability globally through

climatic, economic, social, cultural and environmental change.

During the past several years, landscape architects practicing in the major economies of the world have enjoyed an unprecedented access to work and exposure to international design and planning commissions and competitions of the highest visibility, economic value and engagement with potentially rich and changing ecological systems. It has been a challenging and demanding period for the landscape discipline — but one that continues to be innovative and progressive while building on the traditions of design and planning excellence that have emanated from the field over the last 200 years or more. For the most part, landscape design practitioners remain generally uninterested in the specific economic and political conditions and causes for this abundance, even less so in the profound transformations of the world which make their professional opportunities possible. In glossing over the deeper truths underpinning this moment of landscape design hyper-activity, the landscape field has failed to grasp the real potential of their own competences, knowledge base, methods, commitments and priorities to address issues of larger social, artistic, cultural and intellectual significance beyond the single project, the stand-alone site or the singular design party — in short



3. 图为韩国西首尔公园（1979~2003年间为市污水过滤厂）。景观设计项目基于理念对于场地背景中材料的影响的审慎思考。景观设计：首尔CTOPOS景观设计事务所。© Niall G. Kirkwood, 2013
3. Landscape design projects arise carefully from the impact of ideas upon materials in context. West Seoul Lake Park, Republic of Korea (formerly municipal water filtration plant 1979 ~ 2003). Landscape Architect: The Office of CTOPOS, Seoul. © Niall G. Kirkwood, 2013

这些问题将会日益影响全球的发展格局。然而，景观学科并不需要扩大发展，也无需在应对这些挑战的过程中做到面面俱到——我的意思是，要通过将我们对于景观领域范畴的拓展，使更多的从业者参与进来。相反，在这个景观行业不断发展的时间点上，需要将自身视为一个设计领域，并保持清醒的头脑——简而言之，就是要对景观设计师的核心论点拥有明确意识，并像设计师一样将之付诸于实践。这涉及景观设计师如何工作，在自然和文化、设计的创新和传承方面的固有观念中存在着哪些问题和矛盾，以及，更重要的是，景观设计师如何进行规划和设计。例如，今天的哪种设计手法和策略在处理时利用了当前的物质和经济手段，使其得到巧妙的调度和持续？随之而来的是需要明确构成景观设计学基础知识的维度是什么——核心知识是什么？此外，可能构成新兴的专业研究领域的知识又包括哪些？

景观设计师越来越被迫来对各种尺度和背景进行处理，以解决与基础设施建设、自然及城市生态系统相关的问题，以及由重塑城市区域和对城市河滨或河流环境的再利用而引发的文化和地区问题。这些从前仅限于工程、生态学、广告或区域规划等范畴的问题，现在则需要听取来自景观设计学科的意见，并由景观设计师加以实施。鼓励景观设计师重新审视他们的方法，制定战略和途径，从而将那些早已被视为相互脱离，或与设计无关的属性进行链接，这些属性同时也将为景观设计学这一学科开辟出具有技术性的、正式的和建设性的广泛领域。在过去的10年中，各种景观和基础设施都市主义、数字化的景观表现和批判性理论不断涌现^④。尽管对景观线条和元素进行描述、记录和呈现具有启发意义，但单凭这些活动并不能引起景观领域的足够重视，作为景观设计师，还必须对世界进行实质性的改变。这是一种关注于制造——将景观建造为实物——的活动。

我们所说的景观是一种易于处理的媒介，它由被精心布置的生命的和非生命物质构成，是对世界构想的一种实体呈现。景观领域面临的一个核心问题是要发展一种理性的、灵活的、具有多重焦点的方式，以满足景观所必需的知识面，而这不是某个单一逻辑能够涵盖的。佛大学设计学院景观设计学系的技术与环境研究中心（CTE）目前所做的一些设计研究和项目将作为案例在后文中呈现，同时还将针对这类研究和实践项目作出简短评述，从

而引出关于技术在未来景观设计学中所扮演角色的更广泛的讨论。

4 技术与环境研究中心（CTE）

笔者于2000年在佛大学景观设计系内创立了CTE，以便将研究重点聚焦在城市增长的需求及其对当今的建成环境和自然环境的影响等方面。该中心旨在通过对多样性的理念和技术，以及对不同专业的人士进行整合，从而促进设计创新，并探索环境设计和规划解决方案。CTE为那些在环境规划、设计和开发知识方面都很有限的机构和社区提供支持，并对那些应对与区域社会和经济必要性息息相关的环境挑战的设计方案进行研究。CTE进行了包括对一系列与技艺议题（例如新型场地技术）相关的研究和出版工作。后文将用三个实践项目对本研究工作更为广泛的应用领域进行说明，并对其同技艺的关系进行更为详细的阐述——第一个项目名为“海绵计划”^⑤，是一项为第一届荷兰鹿特丹国际建双年展所筹备的研究生调研项目；第二个是位于临近肯尼亚内罗毕市的“基贝拉项目”，佛大学设计学院的学生们对索韦托东部和堪比姆努地区村庄的需求和实际环境条件进行了研究；第三个是位于以色列特拉维夫市的阿亚隆公园项目^⑥，该公园依托于对特拉维夫这个以色列最大的都市区的一项改造项目——将一个原本备受人为干扰，近来又遭到废弃的大面积地块打造成一个可供周边都市区人民享用的被动休闲活动场地和生态保护区。

4.1 “海绵计划”

在荷兰以及世界各地，由气候变化导致的海平面上升和降水增加正在使得洪水肆虐变得愈渐频发。如果进行填海造地，将不得不通过对堤坝和绕道工程进行调整，并采用溢流式水库和丛林河流的



④ 在过去的12年间，在4种主要新兴局面的共同影响下，以“都市主义”或“景观都市主义”的名义所进行的各种形式的规划和设计实践不断涌现。这4种局面包括：城市话题的重新提及（在某种程度上是因为人口从乡村及城郊向城市迁移）；建筑设计实践在北美地区的总体衰退，以及建筑师的设计对象由建筑物诸如“景观”、都市主义、开放空间等其他设计类型的转变；可供景观设计实践者和学生对复杂的景观进行组合、描述和呈现，以及对逼真的、“身临其境”的景观进行表现的新数字媒体、3D建模和软件应用的兴起；以及最后，一股来自学术与实践者的、非常小众但却发出了有力声音的力量兴起，这股力量已经在国际景观设计界占据了主导。

⑤ 2004年底，荷兰基础设施与环境部委托由佛大学设计学院技术与环境研究中心针对荷兰瓦尔河的一滩地区进行一项应用设计研究项目。关于该研究的正式展览于2004年5月24日在鹿特丹地区拉斯帕尔马斯市举办，荷兰王储出席了展览的揭幕仪式。

⑥ 参与该公园早期设计的景观设计师、设计师及艺术家包括来自墨西哥的马里奥·谢特兰，来自德国的彼得·拉兹，来自美国的朱莉·巴格曼、米尔勒·拉德曼、尤克里斯、艾丽莎·罗森博格、肯·史密斯，来自以色列的施默罗·阿隆森、尤利克·普拉斯纳、耶尔·莫利亚、玛雅·沙谢尔、施罗米·泽维、大卫·古根海姆，以及生态学家罗伯特·弗朗斯（佛大学）与斯蒂文·汉德尔（罗格斯大学）。规划和设计工作由笔者和劳拉·斯组织，由来自博拉查基金会的马丁·韦尔博士与来自特拉维夫规划部的纳奥米·安吉尔监管（丹尼·斯滕伯格与祖丽特·奥隆协助监管）。

4. 图为韩国西首尔公园（1979~2003年间为市污水过滤厂）。问题与矛盾存在于人们对于自然与文化、设计干预与修复的固有观念中，以及更关键的是，景观设计师如何规划与设计。景观设计：首尔CTOPOS景观设计事务所。© Niall G. Kirkwood, 2013

4. What problems and contradictions are inherent in accepted positions on say nature and culture, design invention and restoration, and more fundamental how the landscape architect plans and designs. West Seoul Lake Park, Republic of Korea (formerly municipal water filtration plant 1979 ~ 2003). Landscape Architect: The Office of CTOPOS, Seoul. © Niall G. Kirkwood, 2013

they have failed to acknowledge the concerns of techné and to articulate it and bring it to bear effectively on the re-emergent constructional role in landscape design. The types of challenges and constraints coming from the global and domestic environments for this generation of landscape practitioners (as well as landscape architecture students) in the near future are formidable — severe levels of large-scale natural disturbance are to be found world-wide, large population centers in industrialized and developing countries will continue to expand, new sources of energy, water and minerals will be sought opening up remote territories and fragile land areas, and war, pollution, flooding population displacement and disease will increasingly influence the patterns of global development. However the discipline does not need to grow larger and more multifaceted in response to these challenges, by that I mean increasing the number of practitioners by significant margins. Rather what it needs at this point in time in the evolution of the landscape profession is to be intellectually clear as a design field — in short, to be precise about what landscape architects fundamentally say and do as designers. This means how landscape architects work, what problems and contradictions are inherent in accepted positions on say nature and culture, design invention and restoration, and more fundamental how the landscape architect plans and designs. For example which design approaches and strategies today using the current physical and economic means at their disposal are to be artfully marshaled and sustained? Hand in hand with this is the need to clarify what constitutes the dimensions of basic knowledge in landscape architecture — where the core knowledge lies, along with conversely, what may constitute new and emerging specialized areas of study and research.

Landscape architects are increasingly being compelled to shape a range of scales and contexts, to address questions related to infrastructural problems, natural and urban ecological systems, and cultural and regional issues related to regenerating city areas and reclaiming urban waterfront or river settings. These questions — previously confined to the domains of engineering, ecology, advertising, or regional planning — now require articulation through landscape design and implementation by landscape architects.

Encouraging landscape designers to re-examine their tools and develop strategies and approaches to link attributes that had been understood to be either separate from each other or external to the design disciplines, have also opened up a range of technical, formal, and constructional repertoires for landscape architecture. In the past decade different versions of landscape and infrastructural urbanism, digital landscape descriptions and critical theories have emerged^④. It is enlightening to describe, document and map landscape conditions and elements but these activities alone are not sufficient for the field to be taken seriously. One must also act as a landscape architect to physically change the world. This is an activity focused on the making — the working out the construction of landscapes.

The landscape is a tractable medium composed and built of living and inert materials intentionally deployed to physically embody a version of the world. One of the central questions facing the landscape field is in developing a reasoned, flexible and multi-focused means with which to address the breadth of knowledge necessary for landscapes that are not accountable by any single logic. Several examples of current design research and initiatives in the Center for Technology and Environment (CTE) in the Department of Landscape Architecture at the Harvard Design School will be presented along with a short commentary on the potential of this research and practical initiatives to inform the larger discussion on the role of techné in landscape architecture in the future.

4 Center for Technology and Environment (CTE)

The author founded the CTE in 2000 within the Department of Landscape Architecture at Harvard University in order to focus on the demands of urban growth and its effects on today’s built and natural environment. The envisioned mission of the Center included the promotion of design innovation and the discovery of environmental design and planning solutions by bringing diverse ideas, technologies and people together. It provided support to agencies and developing communities where environmental planning, design, and development knowledge was limited, and it researched design solutions to environmental challenges

④ The various forms of planning and design practice under the heading of “urbanism” or “landscape urbanism” occurred at the nexus of four main emerging conditions over the last twelve years. The re-emergence of the city as a topic caused in part by the population shifts from rural and suburban to urban, the decline of architectural design practice generally in North America and the shift of architects from buildings to other design modes including “landscape”, urbanism and open space, the rise of new digital media, 3-D modeling and software programs available to landscape architecture practitioners and students to assemble, describe and map complex landscapes and document realistic “atmospheric” views, and finally the rise of a very small but intensely vocal group of academics and practitioners who have dominated the discourse in the international world of landscape architecture.

形式以实现对水体的重新适应。与此同时，持续的城市扩张一直为荷兰景观带来了巨大压力。未来全球气候变化将导致海平面上升，而增加的海水将会流入荷兰东西向的河流之中，因而需要为当地未来的聚居地区提出创新性的防洪规划和举措——佛大学的研究对这一假设进行了探索。本项目通过将概念性景观设计与创新性场地材料相结合，对一个既能够作为洪水防控又兼顾当地未来聚居地的创造性策略进行了检验。

第 届鹿特丹双年展——也是 佛大学的研究——由景观设计师阿德里安·高伊策策展，展现了其总体主题“洪水”，该展览的目标之一，即在景观设计学、城市设计和空间规划等学科与土木工程和管理之间搭建起桥梁。“海绵计划”明确了在宽阔的河流冲积地区为瓦尔河创造出更多空间这一需求，以应对未来预期将显著增长的水流量和水流强度。另外，该地区不断发展的城市结构也得到了预测，因此“海绵计划”关注该景观在未来几十年间的演变。

通过使这两种预景相结合，项目提出一种打破河岸防堤，并在旱陆和河流 滩中连结起水系与城市的想法。景观中设计了“弯头”的形状，以为河流创造出新的 滩空间。岛状土地被引入到这个空间中，不仅提供了肥沃的可建造土地，也为河流村庄的未来城市化进程提供了引导。沿着瓦尔河，从奈梅亨到鹿特丹河段的两岸，创建了一连串的 滩河 、旱陆和湿地，以应对上升的水平面和洪水问题，同时满足提升空间的密度和质量的需求。由众多“海绵”组成的网络遍布在荷兰景观之中，以吸收和垂直存储数百万升的洪水，同时还可以为突飞



猛进的新型城市化提供空间。“海绵计划”通过提出一种既能吸收洪水，又能在城市化中扮演结构性元素的混合体系，对传统的堤坝进行了根本性的重新构想。洪水可被一个双海绵系统——软性吸收系统和结构性吸收系统——所吸收。这两者都由混合了高吸水性树脂的土壤的蜂窝网结构构成，能够容纳其自身重量数百倍的洪水。随着水位的上升，柔软的海绵将转化为结构性海绵。

这个项目简要地描述了气候变化、城市化和新技术的出现所带来的局面，后文中的两个景观举措则针对欠发达地区出现的人口过剩、环境破坏和日益枯竭的资源等更加棘手的问题而展开。

4.2 肯尼亚“基贝拉计划”

紧邻肯尼亚内罗毕市的基贝拉地区是一个贫民区，这里除房屋之外的每一寸土地都被厚厚的垃圾层所覆盖。2006年的夏天， 佛大学设计学院景观设计系的学生与来自乔莫·肯尼亚 农业与技术大学和内罗毕大学的学生，以及社区居民共同对索韦托东部和堪比姆努地区村庄的需求和实际情况进行了研究。基于该研究的成果，一个试点项目于2006年7月开始在现场展开。最初的想法是设计一个可容纳社区设施的“公园”，并激活基贝拉地区为数不多却真实存在的开放空间。其中重要的一环是创造并销售一种高质量的、利用新型桶式技术的堆肥肥料，该技术已在世界其他欠发达地区的聚居区中成功应用。通过与其他贫民窟社区合作，并将该堆肥肥料出售给农民，这一新公园的盈利将用于河岸物质环境的维护工作。作为CTE研究工作的一部分，名为“康克伊设计倡议”（KDI）^⑦的计划于2006年在笔者的督导下得以形成。

KDI计划正在形成一个非营利设计团队，并致力于与全球非正规聚落区展开合作，从而发展出策略性的、因地制宜的设计干预，以缓解正在对人民日常生活造成影响的环境退化问题。该计划探索重新审视问题的方式，将问题视作机遇，再将机遇付诸于实践。约有30亿人——将近世界的一半人口——无法获得清洁的水或充足的卫生设施。随着世界上居住在这些条 中的人口比重的持续增长，现在是时候将其视为一个新兴的——如果不认为这种现象已普遍存在的话——全球性的关于土地利用与景观基础设施的问题，并将之纳入景观的考量范畴。城市贫民窟影响的不仅是在那里居住的居民，还会对整个大都市区造成影响，包括地表水和地下

^⑦ “康克伊设计倡议”（KDI）的参与者包括亚瑟·阿戴亚（景观设计师）、帕特里·克柯兰（助理景观设计师）、埃伦·施耐德（景观设计师）、蔡慧君（音译，景观设计师兼城市规划师），以及科查康·沃拉霍姆（景观设计师）。

5. “海绵计划”研究区域——荷兰瓦尔河堤坝。景观设计：CTE研究团队/鹿特丹West8城市规划与景观设计事务所。© Niall G. Kirkwood, 2005

5. Sponge Project Study Area, Waal River Dykes, Netherlands. Landscape Architect: CTE Research Team / West 8, Rotterdam. © Niall G. Kirkwood, 2005

that were integrated with regional social and economic imperatives. This work included research and publishing on a range of topics allied to techne including emerging site technologies. In order to demonstrate the broader scope of applied research work and its relationship to techne and three practicum projects are outlined in more detail — first, an investigation titled “The Sponge Project”^⑤ prepared by graduate landscape students for the 2nd International Architecture Biennale held in Rotterdam, Netherlands, secondly the Kibera Project, located just outside Nairobi, Kenya where GSD landscape architecture students researched the needs and physical conditions in the villages of Soweto East and Kambi Muru, and thirdly, Park Ayalon^⑥ that is based on the regeneration of a large disturbed and currently abandoned tract of land in the midst of Tel Aviv, Israel’s largest urban district creating a passive recreation and ecological reserve for the population of the surrounding metropolitan area.

4.1 The Sponge Project

In the Netherlands, and around the world, rising sea levels and increasing precipitation due to climate change are making serious flooding a more common occurrence. Land once reclaimed will have to accommodate water again through the realignment of dikes and bypasses and in the shape of overflow reservoirs and green rivers. At the same time, increased urban growth continues to exert great pressure on the Dutch landscape. The Harvard study explored the hypothesis that future global climate change will result in rising sea-levels and increased water discharges to the east-west flowing rivers in the Netherlands leading to the need for innovative flood planning and approaches to future settlement in the area. A creative strategy to allow both flood controls and further settlements in the area was tested using conceptual landscape design studies with innovative site materials.

The 2nd Rotterdam Biennale, the venue for the Harvard study, curated by landscape architect Adriaan Geuze took as its overall subject — “The Flood” and one of its aims was to connect civil engineering and administration with the disciplines of landscape architecture, urban design, and physical planning. The

Sponge Project identified the need to create more space for the River Waal in a wide floodplain to accommodate significant increases in the future projected quantity and intensity of water flow. In addition increased development of the urban fabric is also projected for this area and so this project concerned the evolution of this landscape in the coming decades.

The two scenarios were combined to develop a single idea that breaks the dikes at the river edge and combines water and city between the dry lands and a river floodplain. “Elbows” are shaped in the landscape to generate new floodplain space for the river. Island lands are introduced into this space to provide fertile building ground and to guide the future urbanization of the River Villages. Along the length of the Waal River from Nijmegen to Rotterdam a rhythm of floodplain canals, dry rooms and wetlands are created to both address rising waters and flooding and the need to increase density and quality of space. Networks of massive “sponges” are deployed across the Dutch landscape to absorb and vertically store millions of liters of floodwater while providing space for radical new urbanization. The sponge radically re-imagines the traditional dyke by proposing a hybrid structure that both absorbs water and acts as a structural element for urbanization. Floodwaters are captured by a dual sponge system; soft and structural. Both are composed of cellular networks of soil mixed with Super Absorbent Polymers (SAP’s) capable of holding hundreds of times their own weight in water. As water levels rise, soft sponge is converted to structural sponge.

While this project briefly describe conditions arising from climate change, urbanization or new and emergent technologies the following two landscape initiatives introduce the more vexing issues of overpopulation, environmental damage and diminishing resources in developing parts of the world.

4.2 Kibera Project, Kenya

Kibera, located just outside Nairobi, Kenya is a slum where every space not occupied by housing is covered in thick layers of trash. In the summer of 2006, GSD landscape architecture students paired up with students from the Jomo Kenyatta University of Agriculture and

^⑤ In late 2004, the Ministerie van Verkeer en Waterstaat, Rijkswaterstaat commissioned an applied design research project by the Harvard University Graduate School of Design through its Center for Technology and Environment on the floodplain of the Waal River in the Netherlands. A formal exhibition of the research study took place in Las Palmas, Rotterdam beginning on May 24, 2005 that was opened by the Crown Prince of the Netherlands.

^⑥ Landscape architects, designers and artists involved with the early design work included Mario Schjetnan from Mexico, Peter Latz from Germany, Julie Bargmann, Mierle Laderman Ukeles, Elissa Rosenburgh and Ken Smith from the United States, Shlomo Aronson, Ulrik Plesner, Yael Moria, Maya Shafir, Shlomi Zeevi, and David Guggenheim from Israel with ecologists Robert France (Harvard) and Steven Handel (Rutgers). The planning and design work was organized by the author and Laura Starr and overseen by Dr Martin Weyl of the Beracha Foundation and Naomi Angel of Tel Aviv Department of Planning Office (TVDPO) with assistance from Danny Sternberg and Zurit Oron.

水的污染、湿地破坏，以及加剧诸如森林砍伐之类的区域资源利用的压力。因此，那些旨在解决贫民窟环境退化问题的项目对于发展中国家的城市可持续性至关重要。不幸的是，自上而下的开发方案容易忽略当地的实际情况，而且往往受到当地社区的抵制。同样的，小规模的项目则无法意识到更大尺度的景观挑战中所存在的问题脉络。那些以设计为基础，旨在解决清洁用水、垃圾管理、循环利用和粮食生产等问题的景观方案都大有希望对这些生活条 进行改善。从技艺角度出发的景观设计与形形色色的地方性问题相结合，并采用与时俱进的批判性反思来解决。

一个名为“基贝拉公共空间”（KPS）的试点项目在内罗毕大坝附近的一块占地约50hm²的贫民区中展开，该地区位于索韦托东部/斯兰迦的交界处。一条受污染的河流的宽阔两岸上垃圾遍布，但这亦可以被视为一个巨大的契机。其中，80%的垃圾能够降解为堆肥，15%的垃圾可回收利用，这些都是未加以利用的收入来源。如果将垃圾清理一空的话，河岸的面积将足以容纳堆肥和回收企业，这不仅会创造出一个更清洁、更健康的环境，同时也会带来收入，从而投资建设堆肥厕所、社区花园和儿童游乐空间。最终，当地不仅会拥有健康的环境、更强大的地方经济，而且社区会拥有更多的权利，使得居民们能够更好地应对他们所面临的其他问题。其他人道主义设计组织止步于将设计方案交付于社区，而KDI还会做很多更加深入的工作，来协助社区确保资源到位并实施方案，随后KDI将协同

社区一起对实施过程进行管理，直到该社区能够独立运营为止。

项目的总体设计理念是利用线性景观元素——金属筐、种植材料、竹栅栏——在场地中创造出南北走向的线条来分割空间，以为一些活动空间提供安全保障，并有助于划定流线。从昂督谷地区向西——那里有索韦托最大的公共区域，最近正在对一个足球场进行翻修——穿越一片半公共性质的学校场地后，直到场地东侧住宅区附近更加私密的庭院，项目理念力求保留场地东西向的视线通透，营造延续感。

2007年8月2日，KPS团队提出了为在场地附近居住的35名居民建立一个公共空间项目的想法。尽管项目困难重重，但大家几乎都对之抱有极大热情。特别是该社区中的女性们对在第一阶段修建堆肥厕所较为热衷，她们同时也对防洪、堆肥生产、用凤眼莲（*Eichhornia crassipes*）进行编织等举措表示出了兴趣。2007年8月26日，项目破土动工，地面上堆积的垃圾和密布的植被得到了清除。这是为了令项目团队更准确地观察场地上的水文情况。勘测员以10m为单位，测量了场地高程，因此，对河道——这条河道每到雨季，水位会上升1.2m——的任何改动都能够顺利进行。

详细的开发方案中还包括引入堆肥桶。这是一种蓝色的、带有钻孔的塑料桶，被安装在混凝土基座上；桶上部配有盖子，以防止雨水进入；桶底部设有一个铰链门，以便将堆肥移出。项目组成员能够根据此模型自行建立堆肥桶，从而降低生产成



6. 肯尼亚索韦托的基贝拉地区是一个贫民区，这里除房屋之外的每一寸土地都被厚厚的垃圾层所覆盖。景观设计：KDI/CTE。© Konkuey Design Initiative

6. Kenya is a slum where every space not occupied by housing is covered in thick layers of trash. Soweto, Kenya. Landscape Architect: KDI / CTE. © Konkuey Design Initiative

Technology (JKUAT), the University of Nairobi, and community members to research the needs and physical conditions in the villages of Soweto East and Kambi Muru. Based on the findings of this research, a pilot project began on site in July, 2006. The initial idea is to design a “park” that can house community amenities and start to reactivate the few open spaces that do exist in Kibera. A crucial component was to generate, and sell, a high quality compost fertilizer using a new barrel technology successfully used in other settlements around the developing world. By partnering with other slum communities and selling to rural farmers, this new park will generate income that can support the maintenance of physical improvements made along the river. The Kounkuey Design Initiative (KDI) ^⑦ as part of Center for Technology and Environment was formed in 2006 under the author’s supervision.

The KDI is now formed into a not-for-profit design group and is committed to collaborating with informal settlement communities worldwide to develop tactical, context-appropriate design interventions that alleviate the environmental degradation affecting daily life. It looks for ways to redefine problems, as opportunities and then work to make sure those opportunities become reality. Almost 3 billion people — nearly half the world’s population — do not have access to clean water or adequate sanitation. As the proportion of the world population living in these conditions continues to grow, it is timely to consider it as an emerging, if not prevailing, global land use and landscape infrastructure issue and landscape concerns. The effects of urban slums affect not only the residents but the whole metropolitan region through surface and groundwater pollution, wetland destruction, and pressure on regional resource use, for example through deforestation. Projects that address environmental degradation in slums are thus vital for the sustainability of cities in developing countries at large. Unfortunately, top-down development solutions ignore realities on the ground and are often resisted by the local community. Likewise, small-scale efforts fail to recognize the web of issues inherent in any broad landscape challenge. Design-based landscape solutions to the issues of clean water, waste management, circulation, and food production all hold

tremendous promise to those living in these conditions. Landscape design through the lens of techne combines resourceful local problem solving with ongoing critical reflection.

The Kibera Public Space (KPS) pilot project works with approximately 50 hectares of slum land near the Nairobi dam edge on a piece of land at the border of Soweto East / Silanga. The wide, trash-covered banks that surround a polluted river are seen but as an enormous opportunity. The trash, which is 80% compostable and 15% recyclable, represents an untapped revenue source. The banks, if free of this trash, are large enough to house the composting and recycling enterprises that will not only provide for a cleaner, healthier environment but will also generate revenue to support a composting toilet block, a community garden, and a children’s play space. The end result is a healthier environment, a more robust local economy, and an empowered community that is better prepared to tackle other problems facing them. Where other humanitarian design groups end by handing a plan over to the community, KDI goes many steps further by helping to secure resources to implement that plan and then co-managing the implementation process with the community until the point that the community is able to sustain the project on their own.

The general design concept is to use linear landscape elements — gabions, plantings, bamboo fencing to create north-south lines across the site to partition space, provide security for some of the program elements, and help define circulation. The concept is to maintain visual east-west access across the site to provide continuity from the Undugu property to the west, which houses the largest public area in Soweto — a large soccer pitch currently being upgraded, across the semi-public school grounds, to the more private courtyards near the residences to the east of the site.

On 2 August 2007, the KPS team presented the idea of a public space project to a group of about 35 men and women living adjacent to the site. There were questions, but almost uniform enthusiasm for the project. In particular, the women of the community were interested in building the composting toilet in the first phase of the project, but were also interested in flooding control,

⑦ The Kounkuey Design Initiative (KDI) includes Arthur Adeya (landscape architect), Patrick Curran (associate landscape architect), Ellen Schneider (landscape architect), Jennifer Wai-Kwun Toy (landscape architect and urban planner), and Kotchakorn Voraakhom (landscape architect).

本。该设计源自于孟加拉国达卡，在那里，这种堆肥桶已在全市范围内推广使用。

卫生和垃圾是本项目研究的核心问题。厕所是不可能被移动的，加之因为周围土地的使用权、治意愿和经济诱因等复杂因素，卫生和垃圾问题仍然困扰着基贝拉和内罗毕的许多其他贫民窟。“飞行厕所”这一滑稽的命名，是指将粪便排入塑料袋内，然后再扔进沟 中或路边，或者干脆有多远就扔多远。据联合国发展计划署于2006年11月9日在开普敦发布的报告，“2/3的基贝拉人民将‘飞行厕所’作为他们主要的粪便处理方式。”这反驳了肯尼亚 府报告中“99%的内罗毕居民都享有卫生务”的说法。

这些重要但却不起眼的举措不仅关系到诸如厕所或回收中心这类小规模项目的发展，也与这些设施在更大尺度的城市、区域，乃至全球系统中所发挥的作用，以及这些城市、区域和全球系统的可持续性息息相关。例如，许多项目将修建（外观整洁美观的）卫生间作为其重点工作，但利用同等额度的资金修建的社区厕所将成为改善厕所周边环境条 的活动节点——这些厕所能够分流和储存垃圾，以减少对所在区域的影响，还可以通过组织诸如垃圾收集和回收等活动进行创收，并为孩子们提供游乐场等所需的空 间。KDI的利益相关者是那些日常生活受到环境退化影响的群体。这些成功项目在这一尺度上对居民的生活质量的改善立竿见影，也向主要决策者们证明了在更大尺度上进行变革的可能性和必要性。

4.3 以色列特拉维夫阿亚隆公园（原阿亚隆漫滩与赫利亚城市垃圾填埋场）

位于以色列特拉维夫市的阿亚隆公园项目，是基于对特拉维夫这个以色列最大的都市区的一项改造项目——场地原为一个备受人为干扰，近来又遭到废弃的大面积地块——发展而来。这一景观设计方案的改造场地面积为800hm²，旨在创建可供周边都市区——丹区的居民所享用的被动娱乐活动场地、生态保护区和休闲场所。到2020年，特拉维夫都市圈的人口将增长到330万，其中120万人将居住到特拉维夫市区——近一半人口将居住在原有的滩和垃圾填埋场周围。场地周边的城市区域中包括该区中最为贫困的弱势群体，该区域到目前为止还没有像样的开放空间，特别是在位于北特拉维夫的亚尔孔公园的相形之下更显不堪。贯通南北东西的

交通干线交汇于场地的东南角，限定了场地的东、南边界。从机动车交通流线的层面看，这里可以被称之为以色列的中心。由于独特的历史原因，这片广阔、开敞的土地被遗留在特拉维夫区的核心地带，这也使其拥有了成为世界上最大型公园之一，以及成为当地露天社交中心/集会空间的潜能。目前遭受污染的阿亚隆河^⑧——这条河流最近得到了治理——形成了这座公园的大致骨架，它串联起湿地和 泊，也充当着居住区的洪水缓冲区的角色；同时，还有一个水库为公园提供水源补给。赫利亚城市垃圾填埋场^⑨将被整合到公园中，与邻近的农业用地和考古场地相比，其山丘地形将成为一个鲜明对比的地形元素。

该方案包括两个主要的区域：一块是位于耶路撒冷-特拉维夫公路（以色列1号国道）以南、面积约300hm²的土地，其中包括以色列第一所农业学校——以色列希望农学院——的建 物和土地。这座学校受到了法律保护，但由于它已不再是一所普通意义上的农业学校，其设施和项目可以得以现代化的更新，并有望在公共使用、步道和活动等方面的开发中与场地所在地区更广阔的公共区域进行整合。第 一块土地位于这条公路的北侧，面积约500hm²，包括赫利亚垃圾填埋场和回收中心、达罗姆公园、由多个利益相关者所拥有的农业耕地（根据来自以色列土地管理局的规定，这些土地的租期时限不尽相同）、季节性河流阿亚隆河，以及 滩和考古场地。

站在赫利亚垃圾填埋场的顶端，不仅能够将特拉维夫市尽收眼底，还可以远眺波光粼粼的地中海。从另一种意义上说，赫利亚和阿亚隆公园所拥有的视野在以色列及超越了国界的范围内而言都可以称得上是一个新典范。诸如赫利亚一样的垃圾填埋场，以及其他形式的工业生产用地，当它们结束自己的使命后，往往面临着沦为废弃地的命运，这也是导致如此多的棕地出现的原因。如何使赫利亚——这个已经关闭的垃圾填埋场及其周边位于特拉维夫城市边缘、占地800hm²的土地，每天有50万市民经过的“废弃地”和“垃圾堆”——重生为一个世界上一流的、充满活力的公园的一部分，以及一个令当地及地区以外的所有居民感到慰藉的复兴的场所和标志？赫利亚与未来阿亚隆公园的设计工作并不是简单地让这片已经枯竭、最近又遭到忽视——这是后工业环境调整的结果，但这也反映了城市、社区和行业必须对这一争议性区域有所作

⑧ 贯穿公园地区的阿亚隆河是一条以雨水补给为主的季节性河流，其夏旱冬沛，偶有洪泛发生。自英国托管时间开始，公园所在的这片地区就为这条河流保留了一片 滩，这也就是当地不允许修建任何建物，以及该地区不属于周边任何市辖区的原因。公园所在区域将作为一个巨大的季节性水库，充当起洪水缓冲区的作用，其蓄水量可达400万立方米。

⑨ 赫利亚垃圾填埋场于1952年作为垃圾处理场投入运营。现在，该填埋场基底面积约45hm²，顶部面积30hm²，海拔高度约80m，当地相对高度约60m。赫利亚垃圾填埋场于1999年关闭。团队对场地进行研究，对渗滤液和沼气的等级进行记录，并针对污染物和固化坡面的清除提出了工程解决方案。

composting, and water hyacinth (*Eichhornia crassipes*) weaving initiatives. On August 26, 2007 ground was broken and trash and dense vegetation covering the ground was cleared. This was in order to let the team observe more precisely how the water was distributed on the site. Surveyors took spot elevations in 10 m intervals across the site so that any alterations to the river course that rises about 1.2 m during the rainy seasons can be carried out successfully.

A detail development of the recycling efforts includes a compost barrel. It is blue plastic with drilled holes, and has a lid to prevent rain from getting in, a hinged door to remove the compost at the bottom, and sits on a concrete base. Members were able to build the prototype on their own, decreasing the production costs. The design originally comes from Dhaka, Bangladesh where it has been scaled to city-wide use.

The basic issues of sanitation and waste are at the heart of this project study. While toilet’s are not supposed to fly, because of complex issues surrounding land tenure, political will, and economic incentives, they still do in Kibera and in many other slums in Nairobi. A “flying toilet” is a facetious name for the use of plastic bags for defecation, which are then thrown into ditches, on the roadside, or simply as far away as possible. According to a report from the United Nations Development Program launched in Cape Town on November 9, 2006, “two in three people in Kibera identify the flying toilet as the primary mode of excreta disposal available to them.” This contradicts a Kenyan government report that indicates that 99% of Nairobi residents have access to a sanitation service.

These important but humble initiatives are concerned not only with the development of small-scale projects like latrines or recycling centers but also with the roles these elements play in larger urban, regional, and global systems and their long term sustainability. For example, many programs focus on building toilet blocks but for the same amount of capital expenditure community toilet blocks will become nodes of activity that address environmental conditions around the toilet — diverting and containing trash to lessen impact on the defined area, organizing income generating activities like trash collection and recycling, and providing

needed spaces like playgrounds for kids. KDI’s stakeholders are those living daily with the effects of environmental degradation. Successful projects at this scale immediately better the quality of life for residents and demonstrate to key decision-makers the possibility and the imperative for large-scale change.

4.3 Park Sharon, Tel Aviv, Israel (formerly Ayalon Floodplain and the Hiriya Municipal Landfill)

Park Ayalon is based on the regeneration of a large disturbed and currently abandoned tract of land in the midst of Israel’s largest urban district of Tel Aviv. The landscape design proposal arising from the regeneration of this site covers 800 hectares (1,975 acres) creating a passive recreation, ecological reserve and leisure area for the population of the surrounding metropolitan area, the Dan region. By 2020, the population of the Tel Aviv metropolitan area will have grown to 3.3 million, of whom 1.2 million will reside in the district of Tel Aviv, about half of them will surround in the former floodplain and waste fill site. The urban area surrounding the site includes some of the most underprivileged parts of the district, which today have no significant open space, particularly when compared to North Tel Aviv’s Yarkon Park. Eastwards and southwards, the site is bounded by the north- south and east-west traffic arteries, crossing at the south-east corner of the site. This could be described, in terms of motor traffic circulation, as the central point of Israel. Due to a unique set of historical circumstances, this large, open tract of land has been left in the heart of the Tel Aviv district, with the potential of becoming one of the world’s great parks, as well as a local open-air social center and meeting place. The existing polluted Ayalon Stream^⑧ currently under remediation forms the spine of the park, running through wetlands and a lake, a water reservoir feeding the park, and acting as a buffer against the flooding of residential areas. The Hiriya Municipal Landfill mound^⑨ will be integrated into the park as a dramatic topographical element next to agricultural fields and the archaeological site.

The plan includes two main areas of land: one area, approximately 300 hectares (740 acres) lies south of the Jerusalem — Tel Aviv highway (National Road No. 1) and comprises the buildings and lands of

⑧ Ayalon is a seasonal rainwater-fed stream running through the park area, which is dry in the summer and flows in the winter, occasionally causing widespread flooding. The area of the park has, since the time of the British Mandate, been reserved as a flood plain for the stream, which explains both why no building is permitted there and why it is not included within the boundaries of any of the surrounding municipalities. The area of the park will serve as a vast, seasonal reservoir with a containing volume of about 4 million cubic meters, creating a flood buffer.

⑨ The Hiriya waste dump began operating as a waste disposal site for Tel Aviv in 1952. Today, the site extends over some 45 hectares at its base and about 30 hectares at the crown. Its height ranges between approximately 80 meters above sea level and approximately 60 meters above its surroundings. In 1999, the landfill was closed. Studies have been prepared, stating the levels of leachate and bio-gas, and recommending engineering solutions for the removal of these pollutants and stabilization of the landfill’s slopes.

为——的土地恢复其往昔的景象。

涉及景观基础设施、道路、交叉口、通往公园的桥梁和农业草场的更宏大的方案可以被视作一种基础设施投资，而不是简单的工程或园艺技术。规划还对场地中河流和土壤的环境污染做出了应对，并为使场地周边居住区及边远社区/城镇可以享用场地的自然资源制定出了策略。法定规划^⑩（《地区规划纲要5/3》）、赫利亚展览和2001年的规划研究课程为该公园的发展奠定了基础及制定了准则。设计和规划工作作为这些理念的直接成果，旨在检验、整合和阐述这些理念，将之转化为实际规划条例，并为该公园全面实施总体规划提供详实可依的基础。这些内容将构成阿亚隆公园总体规划的基础，考虑到实施工作将分阶段进行，该总体规划将会深化公园的发展和各个部分的方案筹备。

通过对我们当今世界中遭受污染和退化的方方面面（水、空气、噪音、固体垃圾等）进行改造并修复，阿亚隆公园将代表一种文化意识上的巨大变化。它将成为一座具有生态和教育意义的公园。从某种意义上说，这座公园是一座大型的城市实验室。赫利亚垃圾填埋场应被视为在公园中的一个重要的、具有标志性的力量，经过改造和修复为目的的文化范式的转变，彻底扭转已在场地中发生的重大退化。公园中包括回收中心^⑪在内的设施将确保赫利亚最终完全恢复为一个健康的公园。

5 后记：技艺与未来

通过技术将景观设计与环境融合起来的蓬勃发展，以及大量涌现的建造项目将在景观领域开启一个新的时代。景观设计学可以被看作当代设计的一个主要方向，以及为这个时代中的人和地——因为景观是展现生命的舞台，而非将故景作为主角——进行设计和规划的基础性的、生动的、明确的依据。我试图通过一种更具适应性的手段来解决目前的景观问题或当代事——例如，利用花园、公园、散步道、水滨、街道、广场等经典景观类型，忽略对景观的自身性质的探索，而是利用被扰动的土地、垃圾填埋场和棕地的性质来探索景观的过程和内容。在这些探索中，提出了一个新的景观维度，并将这无法感知或体验的维度以不同的形式，实实在在地展现在世人眼前，也许景观设计领域会因此而扩大，或变得更为丰富或更富成效。这种探索所具有的价值在景观设计学中已经得到了很好的表达。实现这种表达需要景观设计师不断对技艺以

及场地、生态、工程和材料的表现潜能进行探索。在此过程中，景观设计师将会对技术开源与否，或是否“智能”等问题进行思考，也会对历史、我们对环境的所作所为的本质，以及在过去的岁月中文化上的影响和延续等基本问题发出疑问。他们尤其会向我们对于景观设计学现今阶段的理解提出强烈质疑——今天，景观设计学正随着老一辈执业者的离世而走向衰退。这个行业中仅存的是对那些已经拆毁或破坏的设计项目，和对那些已经遗失的图纸、照片和草稿的回忆，以及对设计研究进行东拼西凑，那些设计研究在如企业园区、全国公路和铁路系统、大学校区、步行街，以及与能源、开采和废弃物有关的景观中沿用至今。最后，我们将之带回景观设计学，并特别视之为设计的基石。景观设计师必须明确他们自身任务的性质，以及他们自身所扮演角色的重要性及相对价值。这需要时间和很大的耐心。而且，由于我们的设计习惯的转变并逐渐固定，以及学术研究的范围和重点在特定领域间的变化，（那些仍投身于景观行业，并通过行动来理解这个世界）景观设计师的主要义务依旧是通过将他们可控范围内的普通物质环境，和他们所掌握的物理建造和经济手段相结合，发展出一个包容各方的重新建构世界的人文理念。

最后，我们必须相信，那些用心、用脑、用手所创造出的景观才是最持久的，未来几年内景观设计师将继续保持创造性的思维和建造方式，因为这些是对景观现状和氛围进行展示、表现并使之永恒的有力工具。通过景观设计学中的艺术、科学和文化——这三者同等重要，在过去的一个世纪中，景观设计师用一种迅速且稳固的方式扩大了其领域，并延续了其行业的愿景和领导力。但对景观设计师们一直存在三方面的基本能力要求：第一，应在价值观的认知和一定程度上的文化方面具有洞察力；第二，应具备庞大的知识积累；第三，应具有将所有这些材料融入创造性的行为、形式和过程中的能力。最后——也是本文讨论的全部——景观设计学是一个复杂的、具有争议性的、从未达成一致高度的整体。景观是一种易于处理的媒介，它由被精心布置的生命的和无生命的物质构成，是对世界构想的一种实体呈现。对景观进行描述和评论是具具有启迪意义的事，但仅有这些还不够。景观设计师也必须采取实际行动来改变世界。这是一种通过技艺和时间进行制造——需做出成果——的景观活动。**LAF**

^⑩ 该法定规划是一个总体框架，而没有对分区进行详细划定。该法定规划所依据的原则是对公园边界内所有的农业用地做出临时性重新定义，将这些土地保留下来，以作“公园用地”。这项措施已被经采纳，由于法律上所有权的复杂性，具体用途将在后续阶段决定。另一项基本原则是逐步实施计划，允许每个承租人继续耕种土地，直到租期期满为止。因此，公园内的几个大的地块可能会在未来几年中继续得到耕种。

^⑪ 位于赫利亚山丘东麓的占地面积30hm²的围合场地——目前其中建设有一个垃圾中转站——被划定为“可回收公园”：这座工业化的园区将采用最先进的垃圾处理与回收利用技术，并设有一个具有积极教育功能的游客中心。通过植物种植，园中的施工及拆毁废料、无污染垃圾、生活垃圾、废旧轮胎及其他废弃物环境将得到改善。

Israel’s first agricultural school, Mikveh Yisrael. As such law protects it, but since it has ceased to function as a regular agricultural school, it may modernize its facilities and programs and it is expected to be developed in collaboration with the larger public area of the site, in terms of public access, paths, and activities. The second area, approximately 500 hectares (1,235 acres) lies north of that road and comprises the Hiriya Landfill and recycling center, Park Darom, cultivated agricultural land held by a number of stakeholders under different leases from the Israel Lands Authority, the seasonal Ayalon Stream and its floodplain and archeological sites.

The view from the top of the Hiriya Landfill is expansive reaching beyond the city of Tel Aviv to the sparkling Mediterranean Sea. In another sense, the view from Hiriya and the proposed Park Ayalon is a new paradigm both for Israel and the international terrain beyond. The productive life of landfills such as Hiriya and other forms of industrial production come to an end, and are usually replaced by abandonment and dereliction as is the case of so many brownfield sites. How can Hiriya the closed waste landfill and surrounding 1,975 acre lands on the edge of Tel Aviv, a symbol of dereliction and pollution to the half million citizens who pass it every day, be reborn as part of a vibrant park of the highest quality in the world and an amenity and symbol of rebirth and healing for all the residents of the city and beyond? The work associated with Hiriya and the future Park Ayalon is not just a simple return to the productive use of exhausted and currently undervalued land — a tidying up of the past industrial environment, rather it signals a profound shift in the way in which cities, communities and professionals must lay claim to this disputed area.

Broader proposals concerning landscape infrastructure, roadways, intersections, bridges to the park and agricultural meadows become an infrastructural investment rather than simply engineering or horticultural techniques. Planning has also moved on to tackle the environmental pollution to the site’s streams and soils and outlined strategies to bring surrounding neighborhoods and outlying communities and remote towns to enjoy the natural resources of the site. The

statutory plan^⑪ (*Regional Outline Plan 5/3*), the Hiriya Exhibition, and the 2001 planning workshop laid down foundations and principles for the development of the park. The design and planning work was a direct sequel, intended to examine, integrate and elaborate these ideas, to translate them into practical planning terms, and to offer concrete contents towards the formulation of an overall applied master plan for the park. These contents will form the basis of the Park Ayalon Master Plan, which will enable further development of the park and preparation of plans for its various parts, taking into consideration that execution will be in phases.

The Park Ayalon will symbolize a dramatic shift in cultural consciousness, expressed as a commitment to transform and to heal various polluted and degraded aspects of our contemporary world (water, air, noise, solid waste, etc.) The park will be ecological and educational. In a sense, the park is a large-scale, urban laboratory. Hiriya Landfill should be seen as a major, symbolic force in the park, creating a cultural paradigm shift towards transformation and healing, in order to totally reverse the great degradation that has occurred here. The park’s program including the recycling center^⑪ will guarantee commitment to Hiriya’s eventual, complete restoration as healthy parkland.

5 Postscript: Techne and the Future

A flourish of engagement between landscape design and the environment through techne and the making of constructed projects will mark this coming period for the landscape field. Landscape architecture can be viewed as a dominant orientation in contemporary



^⑩ The statutory plan is structured as a general framework and not as a specific zoning plan. The principle upon which the statutory plan is based on is a temporary redefinition of all the agricultural lands within the park’s boundaries as reserve for “park use”. This measure has been taken, the specific uses will be determined at a later stage due to legal ownership complexities. Another basic principle is the gradual implementation of the plan, allowing each lessee to continue cultivating land until the lease term has expired. As an outcome, several large plots within the park may remain cultivated for years to come.

^⑪ The 30 hectares compound at the eastern foot of the Hiriya mound, which currently includes a waste transfer station, is designated as a Recycling Park: an industrial park that will use the most advanced waste treatment and recycling technologies available, combined with an active educational visitors’ center. The plants in the park will treat construction and demolition waste, green waste, household waste, used tires and more.

7. 以色列特拉维夫阿亚隆公园垃圾填埋场上层。景观设计：博拉查基金会/丹区CTE。© Niall G. Kirkwood, 2004
7. Upper level of waste landfill, Park Ayalon, Tel Aviv, Israel. Landscape Architect: Beracha Foundation/CTE, Dan Region. © Niall G. Kirkwood, 2004

design and a fundamental, living, definitive basis of design and planning for people and place in time — as it were, the stage for life rather than the scenery of old. I have sought to reconcile current landscape problems or contemporary subjects by a more adaptive means, for example using the classically-held landscape types of garden, park, promenade, waterfront, street, square and overlooking to experiment with the nature of the landscape itself, and conversely using the nature of disturbed lands, landfills and brownfields to experiment with landscape processes and content. From those experiments, a new dimension arises in the landscape and forms emerge and become tangible that would not otherwise be perceived and experienced, perhaps the landscape design world expands, or a landscape becomes richer or more efficient. Such experience constitutes value, the kind of value that landscape architecture conveys so well. To do this requires the ceaseless exploration by landscape architects of techne and the expressive potentials of site, ecology, engineering and materials. In doing so, landscape architects will ask questions of technology whether passive, active or “smart” and also ask fundamental questions of history and the nature of our engagement with the environment and the cultural influences and legacies of past centuries. In particular they will question strongly our understanding of the recent modern period of landscape architecture, just slipping away through the passing of older practitioners. What remains are the memories of demolished or ravaged design projects and missing collections of drawings, photographs and sketchbooks, and the patchwork of design research that has been carried out to-date on for example, the corporate campus, the national road and rail systems, the university precinct and the pedestrian mall and the landscapes of energy, extraction and waste. In the end, we bring it back to landscape architecture and specifically to design as the bedrock. Landscape architects must aim to clarify the nature of their tasks and determine the importance as well as the relative value of their parts. And this takes time and a great amount of patience. Moreover as our design habits shift and mature in response, and as the scope and focus of scholarly inquiry weakens or intensifies in certain

areas, the main obligation as landscape architects — of working in, and making sense of this changed world through action — remains the humanistic idea of an all-inclusive re-construction of the world through an engagement with the ordinary physical environment appropriate to the scale of endeavor and using the physical construction and economic means at their disposal.

In closing, believing, as we must that landscapes of the heart, mind and hand are the most enduring, in coming years landscape architects will continue creative thinking and construction as a potent instrument of revelation, expression, and perpetuation of the landscapes actualities and moods. Through the art, science and culture of landscape architecture — each no less than the other, landscape architects possess a swift and sure means of touching the greater world and continuing the profession’s vision and leadership of the last hundred years. But they always require three basic capacities; first, of perceptiveness, a recognition of values and a certain kind of culture, second a capacity for the vast accumulation of knowledge, and third, a capacity to integrate all these materials into creative acts, form and processes. In the end, it is the whole that matters, the complex, controversial, never quite agreed-upon totality that is landscape architecture. Landscape is a tractable medium composed of living and inert materials intentionally deployed to physically embody a true version of the world. It is enlightening to describe and comment on landscapes but these activities are not sufficient. The landscape architect must also act to physically change the world. This is an activity focused on the making — the working out — of landscapes through techne and time. **LAF**

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