Pioneering “Comprehensive Urban Landscape Technology” (CULT):
an integrated system model for urban sustainability as community amenity in a compact urban environment

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Floating Fields

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I. INTRODUCTION: BACKGROUND AND CONTEXT
Productive pond-scape and leisure public space, integrate aquaponics and algae cultivation, water filtering and sustainable food production.
Floating Fields

Productive leisure eco-water landscape
Productive pond-scape and leisure public space, integrate aquaponics and algae cultivation, water filtering and sustainable food production
Floating Fields

概念策劃建築設計
Concept, Organizer, Architect

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藻塘項目團隊
Algae Cultivation Co-creator

香港公開大學微藻研究團隊
Microalgae Research Team, The Open University of Hong Kong
Prof. HO Kin Chung, Dean, School of Science & Technology
Mr. WONG Yee Keung, Assistant Lecturer
CHAN Ka Kwan, CHEN Jun Jie, CHEUNG Ka Yau, HO Ting Hong,
LEE Yiu Lun, TSE Chun Yiu, YIU Kui Fan

委託單位
Commissioner

深圳城市\建築雙年展組委會
Shenzhen Bi-City Biennale Organizing Committee

場地及建設贊助
Venue and Construction Sponsor

招商局蛇口工業區控股股份有限公司
China Merchants Shekou Industrial Zone Holdings Co., Ltd.
Background

Revitalise disused factory,
Recover natural water source,
Refer architectural grid

near Futian area, Shenzhen, 40 years ago

Re-living the city
Bio-social urbanism in the 21st century
Background

Mulberry-dyke Fish Pond, PRD tradition

Filtering Ponds

Deep Bay floating fields, oyster-growing tradition

Floating Plots · Aquaponics

漂浮田：鱼菜共生

过滤走廊：藻类及滤水植物 作净水及景观

後海灣/深圳湾鹹淡水交界浮排豪蚌養殖傳統
2. CONCEPT AND DESIGN
Floating Fields
Recycling architecture as productive leisure pondscape
Productive leisure eco-water landscape

Concrete ground broken up to form larger ponds; crushed rubble recycled as gravel to fill pathways; productive ponds formed from concrete bricks; pathways, platform, bridge with steps, benches and pavilions to create a walkable landscape, public space combining food production and leisure.
3. ECO-WATER CYCLE AND FLOATING PLOTS
The project’s water cycle can be self-sustained. Waste water first enters the algae ponds, cleaned by the filtering ponds, and purified in the water lily pond. Then it flows into the carp pond, duck pond, onto the floating plots and aquaponics and mulberry fishpond areas. The floating plots gives oxygen to the water while partially cleaning it, before going back to start of the cycle. Part of the cleaned water is used for rooftop irrigation.
浮莲塘
Water Lily Pond

Clean water returns to fish ponds

Waste water filtered by filtering ponds, becomes suitable for water lily growing

Water lily for filtering water and viewing
为什么要养锦鲤？
供观赏用、生命力强、适应性较好
鸭塘
Duck Pond

除草、防虫、提供有机肥料
作植物共生体，浮田周边水面养鸭，植物动物互利共生，无公害生产

浮田作物吸收鸭便，水质净化，也为我们提供食物
Duck droppings absorbed by floating fields, improving water quality and providing food.

水循环继续流向其他鱼塘
Water flows to other fish ponds as a cycle.

养殖鸭子
Duck cultivation

水循环由鲤鱼池流入
water flows in from carp pond.

图解说明：鸭塘作为植物与动物的共生体，浮田周边的水面养殖鸭子，实现了植物和动物的互利共生，达到了无公害生产的目的。鸭子的粪便不仅为浮田提供了有机肥料，还起到了净化水质的作用。这种模式不仅提升了农产品的质量，还创造了一个生态平衡的环境。
浮田·鱼菜共生
Floating Fields · Aquaponics

鱼菜共生
Synergy of fish breeding and planting

鱼菜共生
鱼帮菜，菜帮鱼
Synergy of fish breeding and planting

水产养殖
Fish breeding

水质转好，作物提供
water quality is improved; provision of oxygen from plants to fish

有机食用作物
Organic crops growing on floating fields

植物吸收鱼便，净化水质
Absorption of fish excreta by plants to purify water

鱼类提供有机排泄物给蔬菜
Provision of nutrients from fish excreta to vegetables

浮田漂浮水上土地，可节省土地利用，不需要浇水换水，不需要添加农药化肥抗生素生长激素等。鱼帮菜，菜帮鱼的大自然共生原理
浮田·鱼菜共生
Floating Fields · Aquaponics

水质转好,作物提供鱼所需的氧气
Water quality is improved; provision of oxygen from plants to fish

有机作物
Organic crops growing on floating fields

鱼类提供有机排泄物给蔬菜
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鱼帮菜, 菜帮鱼
Synergy of fish breeding and planting

鱼帮菜，菜帮鱼

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Fish breeding

Fish breeding
塘内养鱼供食用，塘外植桑用来喂鱼和养蚕，蚕沙喂鱼，塘泥肥桑。鱼、桑、蚕之间营养交错循环，食物链和食物网传递的共同促生良性循环过程。
藻 塘
Algae Ponds

光合作用
二氧化碳 + 水 ⇔ 生物質能 + 氧氣
Photosynthesis:
Carbon Dioxide + Water ⇔ Glucose + Oxygen

 Sunshine

生物反應器
Bioreactors

污水為藻類培殖提供營養
Waste water provides nutrients for algae cultivation

開放式池塘
Open pond

過濾
Filter

魚塘及種植污水
Waste water from fish ponds and planting

藻類培殖使廢水轉化為
魚飼料和有機肥料
Algae turns waste water into fish feeds and organic fertilizer

水循環流向過濾池塘
Water flows to filtering ponds
藻塘项目团队
香港公开大学
何建宗教授，香港公开大学科技学院院长
黄仪强先生，香港公开大学科技学院助理讲师
陈嘉坤，陈俊杰，张嘉佑，何庭康，
李耀麟，谢俊耀，姚莒英

香港公开大学
过滤池塘 提高水资源利用效率，污水循环处理。滤水草本植物及碎石栽培介质为过滤媒介，处理项目中的废水。
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Multi-cycle Ecology

Floating Fields integrates multiple ecological cycles, including Mulberry dyke Fish pond, aquaponics, floating farming plots, rooftop growing, filtering ponds and algae cultivation into one interrelated productive ecosystem. Ecologies within each part have multiple functions such as two-way nutrient provision, waste water recycling, crop production and landscape features, creating more flexibility than conventional closed systems; a virtuous cycle.
Floating Fields

蛇 口 浮 田
Floating Fields

蛇 口 浮 田
Floating Fields  蛇口浮田
Floating Fields

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Floating Fields

蛇口浮田
4. PUBLIC ENGAGEMENT AND RECOGNITION
Floating Fields

蛇口浮田
Floating Fields 蛇口浮田
Floating Fields
6th UABB Biennale Organizing Committee Grand Prize

Award Jury comments:

“Floating Fields is a landscape complex that constitutes an experiment and exploration entirely based on the curatorial theme of “Reliving”. It is an exquisite and beautiful work, not only reviving the roots of a variety of agricultural and aquatic cultivation, the unique ecological agricultural landscape of the Pearl River Delta, but also extends and transforms them into a unique public space that offers a pleasurable leisure experience. Floating fields recreate the ‘mulberry-dyke fish-pond’ culture in an elegant and lyrical way.”
WORLD ARCHITECTURE FESTIVAL 2016
Berlin

Winner

Production, Energy and Recycling – Completed Buildings category

Super Jury
David Chipperfield (David Chipperfield Architects), Louisa Hutton (Sauerbruch Hutton), Frédéric Migayrou (The Bartlett) and Angelene Chan (DP Architects).


- "Floating Fields” in Post-industrial Urban Orchard: City after the City curated by NICOLIN Pierluigi and SANCHIS García Maite. Triennale International Exhibition 2016 (Milan) vol.21. Milan, Italy.
5. CONTINUITY AND EXTENSION

Earth Day Summit 2016: From Paris Agreement to Post-Carbon Cities

'Best of Category - Students Architecture' in A&D Trophy Awards 2015
Earth Day Summit 2016 From Paris Agreement to Post-Carbon Cities
The Open University of Hong Kong

Presentation, panel discussion and exhibition

Presentation to Mr Kam-sing Wong, Secretary for Environment
“瓜菜造園　凝聚社區　我們值得擁有食物公園”

Food Park in Hong Kong?

• Urban cultivation

• Parks & Public Space

• Community Building

• Liveability

HK01 本土．好自然．2017.04.01
这张图片显示的是一篇中文文章的一页内容，但没有提供足够的上下文信息来准确翻译或理解文章的全部内容。从内容中可以看到一些关键词，如“自然”、“本土”、“2017.04.01”等。由于缺乏上下文，无法提供完整的翻译。
Pioneering Comprehensive Urban Landscape Technology (CULT)

- Institute of Future Cities IoFC, CUHK + Private sector
  - School of Architecture
  - School of Life Sciences
  - Department of Geography and Resource Management

- Multi-disciplinary lab on innovative green development
  - design, architecture and urban studies
  - empirical study on water ecology, crop, fish, duck + algae cultivation
  - urban food production + integration with environment
- **Demonstrate** key role architectural and landscape design play in integrating biodiversity and environment-related technologies to create sustainable public amenity

- **Test + optimize existing system** as a dynamic, multi-functional facility: address carbon footprint reduction, urban food production, water recycling in water-carbon-food nexus

- **Educational venue + live demonstration**

- **Optimize system + develop as prototype** suitable for application as community amenity in future developments
Floating Fields

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