

# URBANGAUSS

Research Project 1981-2019

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chairman / Osaka Green Purchasing NetWork

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**SIMULATING “the DWELLING SPACE”  
from PAST to FUTURE for HOW WE LIVE NOW**

**RESEARCH PROJECTS 2000-2013**

from PAST: RESEARCH PROJECT 1:2000-2013  
LEARNING & ARCHIVES of SPACE HERITAGE 1200 YEARS  
Exhibition :Tōji Temple Kyoto-ANATOMY in CYBER SPACE  
JAPAN2003-13 CHINA2004

works of graduate school / Kyoto City University of Arts

to the FUTURE: RESEARCH PROJECT 2: 2001-2008  
HOW to DWELL in INTERNATIONAL SPACE STATION  
artistic approaches to space / Kyoto City University of Arts

NOW :RESEARCH PROJECT 3:2003-2008  
HOW WE ACT for ECODESIGN SOCIETY  
OSAKA MODEL of CIRCULATION ORIENTED SOCIETY  
through CASE STUDY of EXISTING CITY & NEIBORHOOD NATURE  
Team axis4 / npo ecodesign network

SIMULATING “the DWELLING SPACE”  
from PAST  
for HOW WE LIVE NOW

research projects 2000-2013

from PAST: RESEARCH PROJECT 1:2000-2013

LEARNING & ARCHIVES of SPACE HERITAGE 1200 YEARS

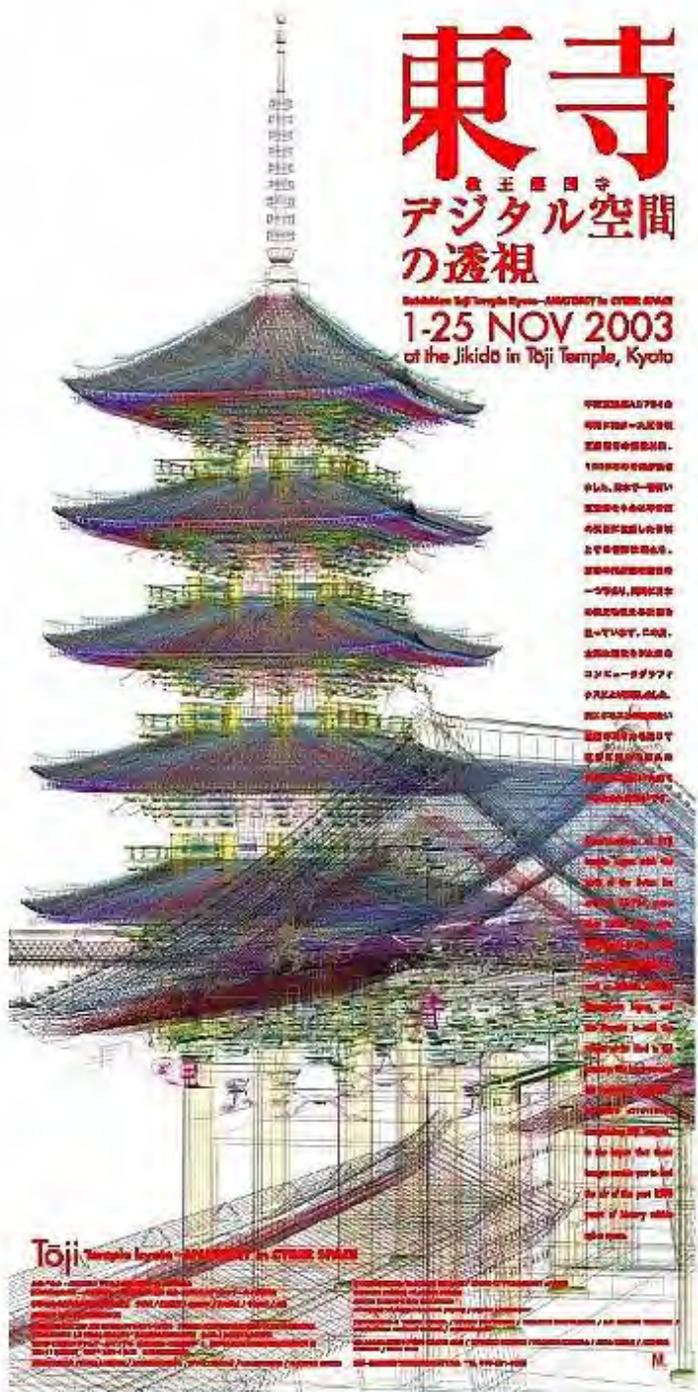
Exhibition :Tōji Temple Kyoto-ANATOMY in CYBER SPACE  
JAPAN2003-13 CHINA2004

works of graduate school / Kyoto City University of Arts

# 東寺

1200年の京都-都市の垂直軸  
空間を創る立場で、透視し、  
心の中に移築する。





# 東寺

## 東王國寺 デジタル空間 の透視

Exhibition Toji Temple Kyoto - ANATOMY in CYBER SPACE  
1-25 NOV 2003  
of the Jikido in Toji Temple, Kyoto

東寺の歴史は、大正時代に  
建築家の中村嘉六郎が、  
1900年代前半に撮影した  
写真から、初めて「透視」  
図法でその姿を再現した。この  
写真は、東寺の歴史を  
伝える重要な資料である。  
この透視図法は、東寺の  
建築の構造を、現代の  
デジタル空間で再現する  
ための重要な手がかりとな  
った。この透視図法は、  
東寺の歴史を伝える重要な  
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Toji Temple Kyoto - ANATOMY in CYBER SPACE

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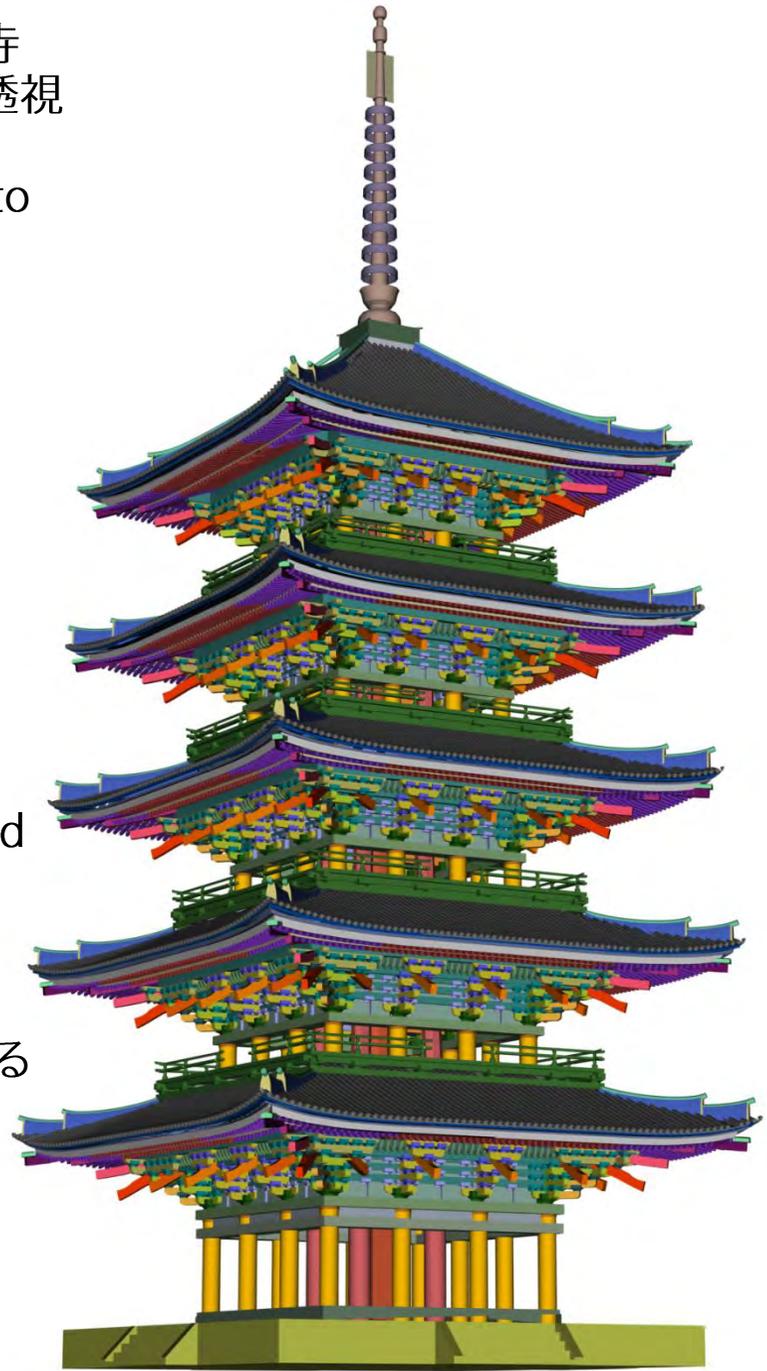
東寺-教王護国寺  
デジタル空間の透視

Toji Temple Kyoto  
-ANATOMY in  
CYBER SPACE

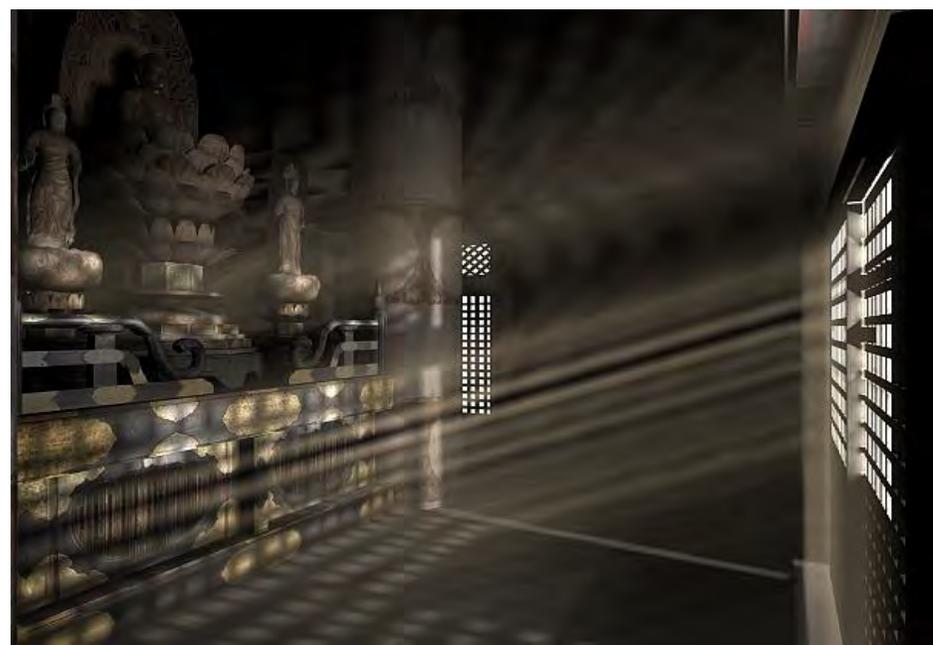
Archive DNA  
of the Space  
by 3D CG Method

空間のDNAを  
3Dアーカイブする

1200 YEARS  
VERTICAL AXIS  
in KYOTO



空間を創る立場で、透視し、心の中に移築する。

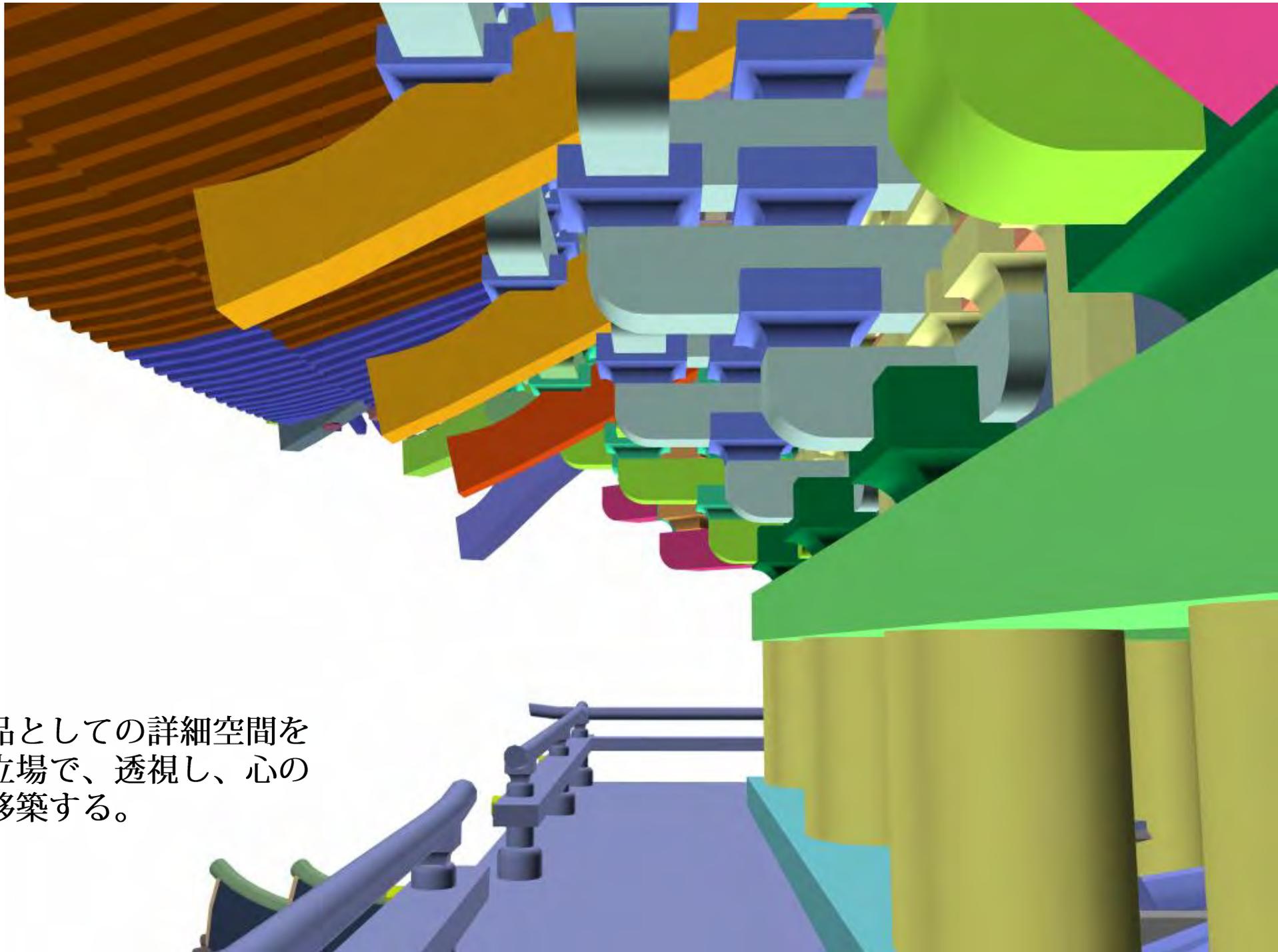


Already 1200 years past from Heian Era starting AD794.  
At that time Tōji temple Kyoto starting.  
Tōji temple is one of most famous buddhism & historical symbol .

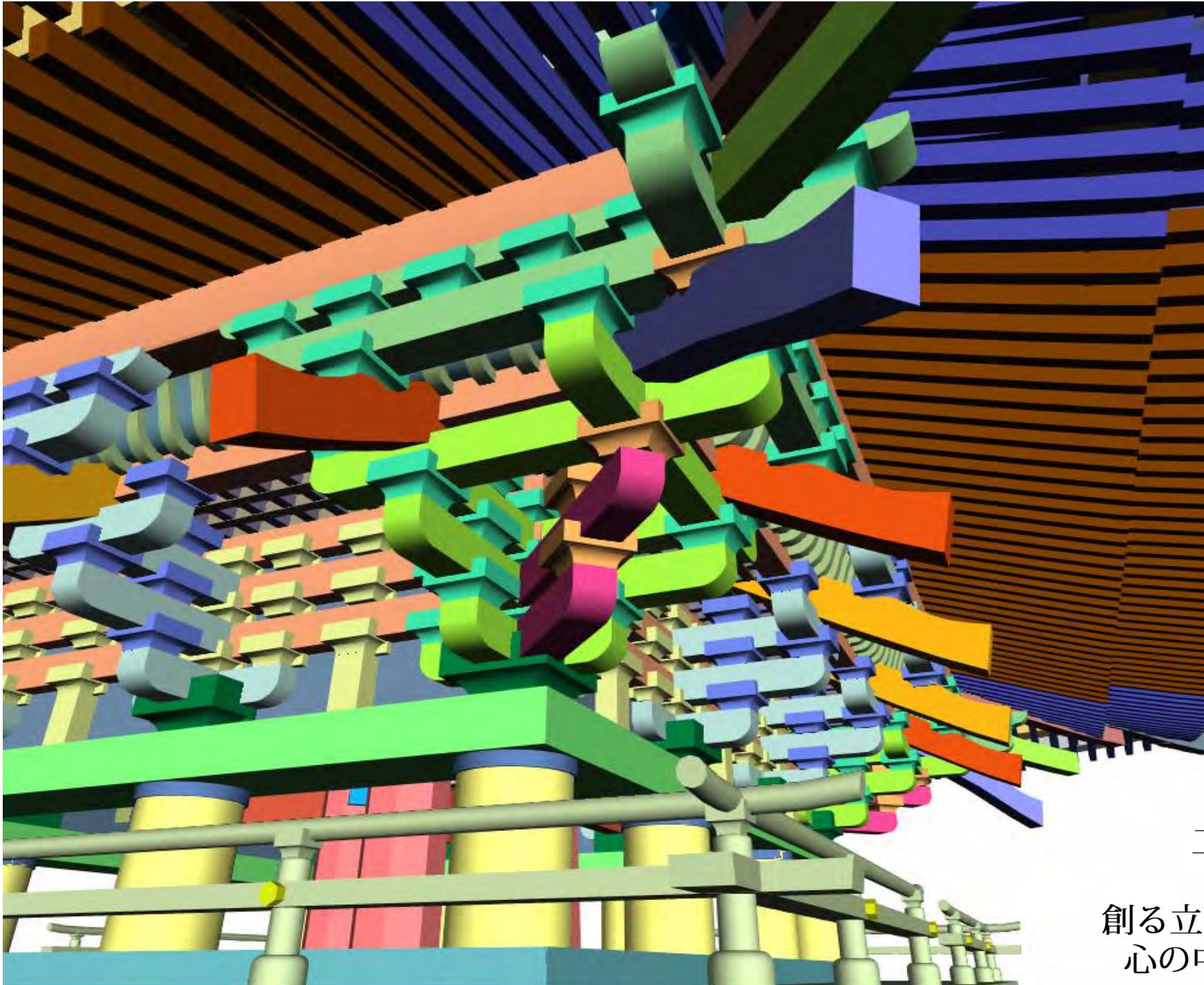
The Pagoda is tallest in JAPAN even now.

We tried 3D-CG for some facilities to feel air of 1200 years history in cyber space.

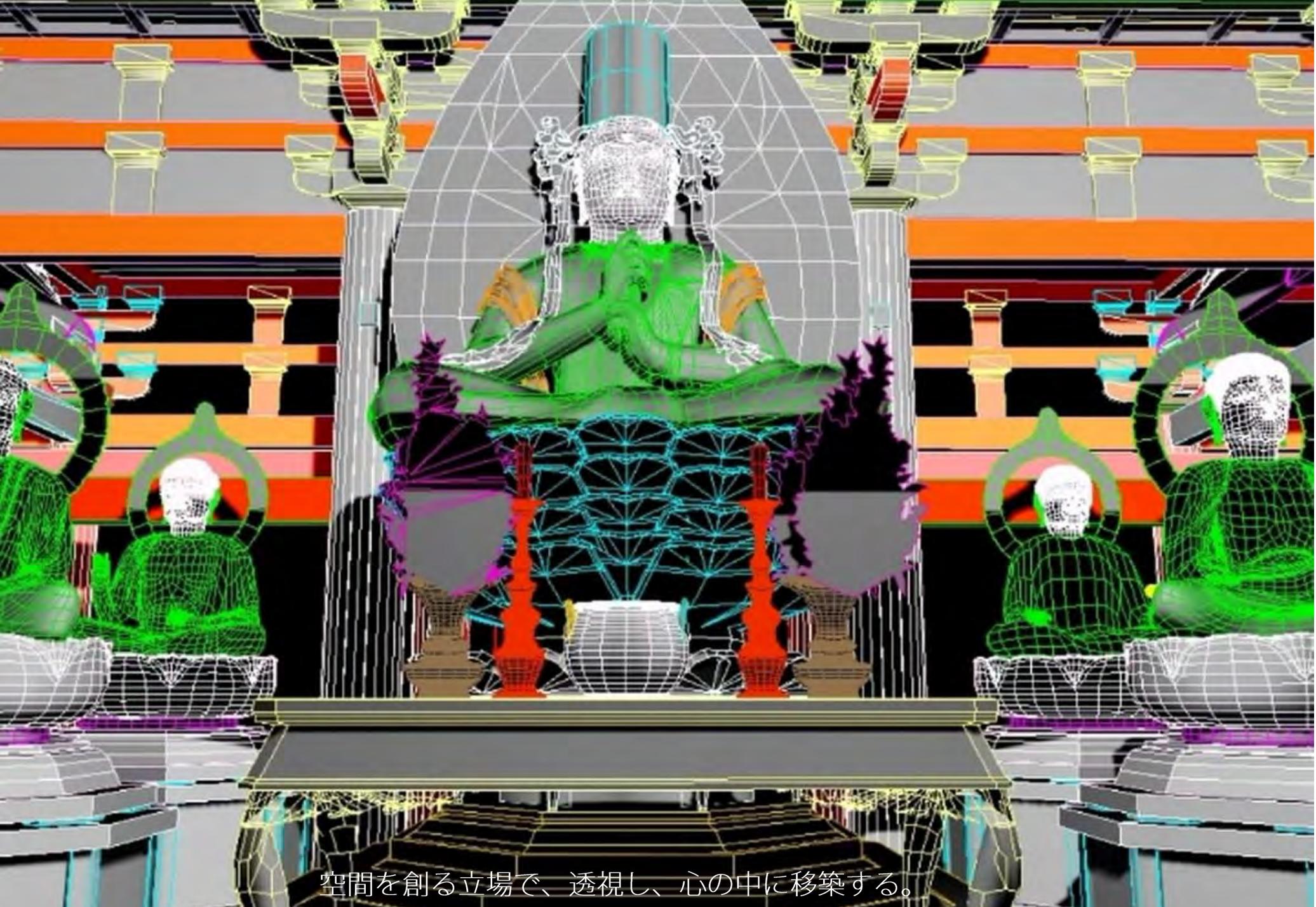




工芸品としての詳細空間を  
創る立場で、透視し、心の中  
に移築する。



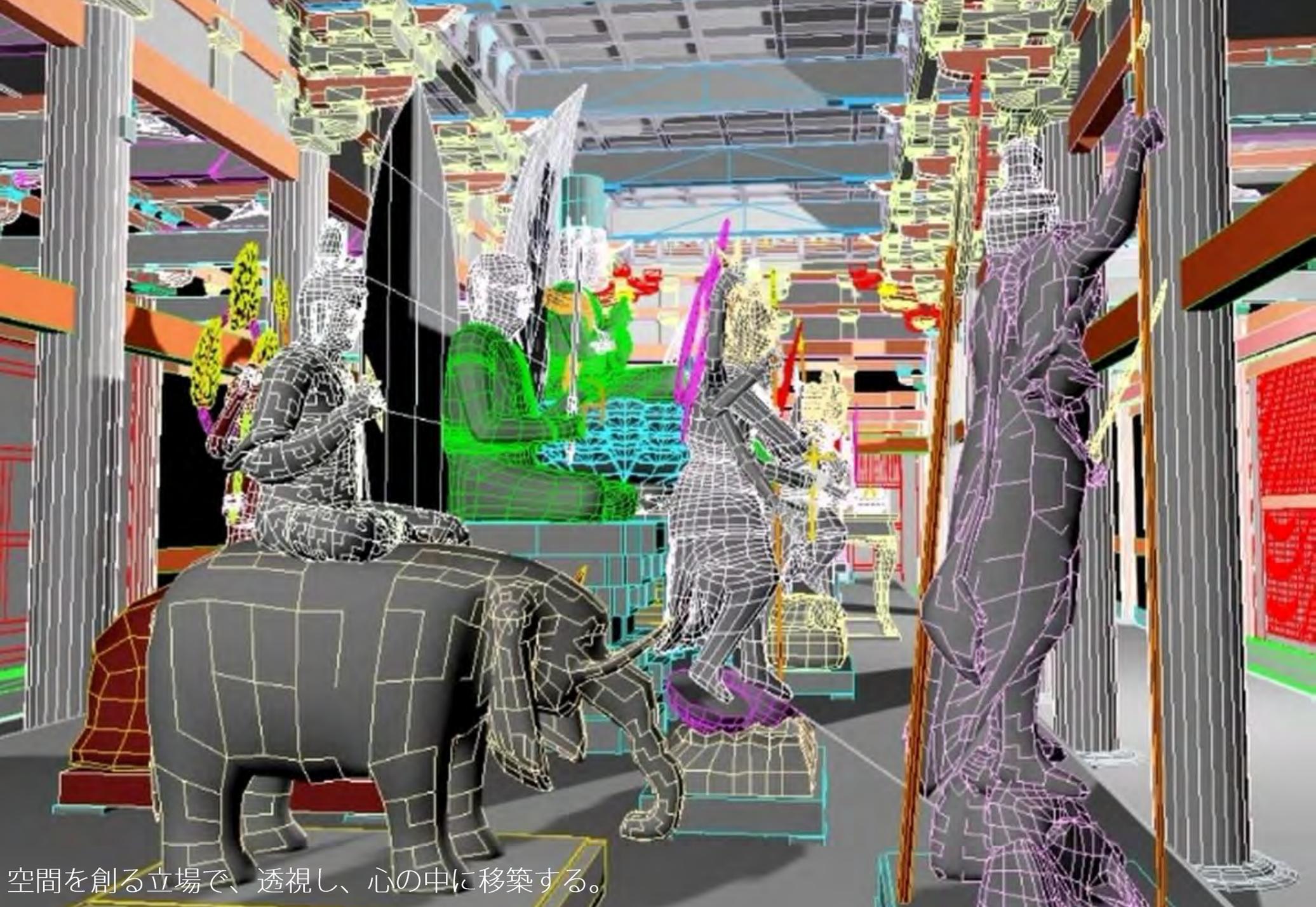
工芸品としての  
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空間を創る立場で、透視し、心の中に移築する。



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空間を創る立場で、透視し、心の中に移築する。



# 東寺

教王護国寺

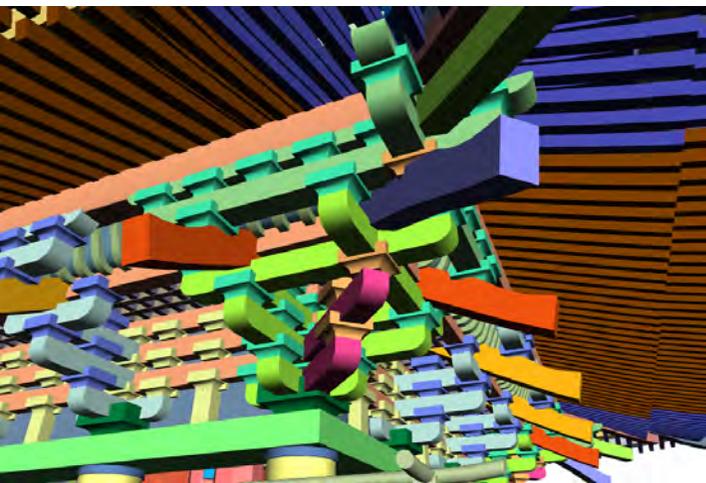
## デジタル空間 の透視

Exhibition Tōji Temple Kyoto—ANATOMY in CYBER SPACE

1-25 NOV 2003

at the Jikidō in Tōji Temple, Kyoto

東寺—教王護国寺 デジタル空間の透視  
Tōji Temple Kyoto—ANATOMY in CYBER SPACE



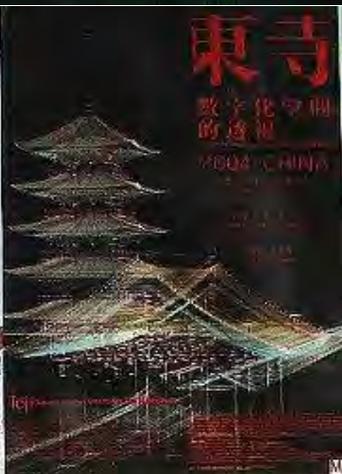


空間を創る立場で、透視し、心の中に移築する。2003-04



# 東寺 数字化 空間的 透視展

中国2004  
北京清华大学·  
西安西北工业大学·  
青龍寺



SIMULATING “the DWELLING SPACE”  
to FUTURE  
for HOW WE LIVE NOW

research projects 2000-2008

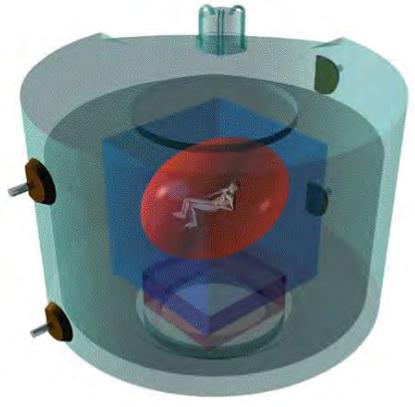
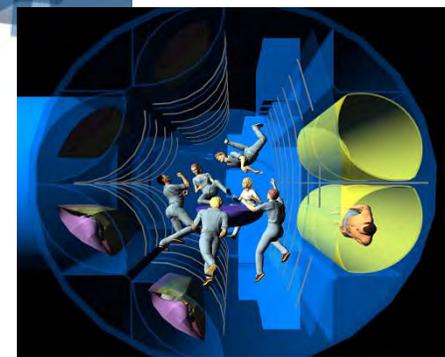
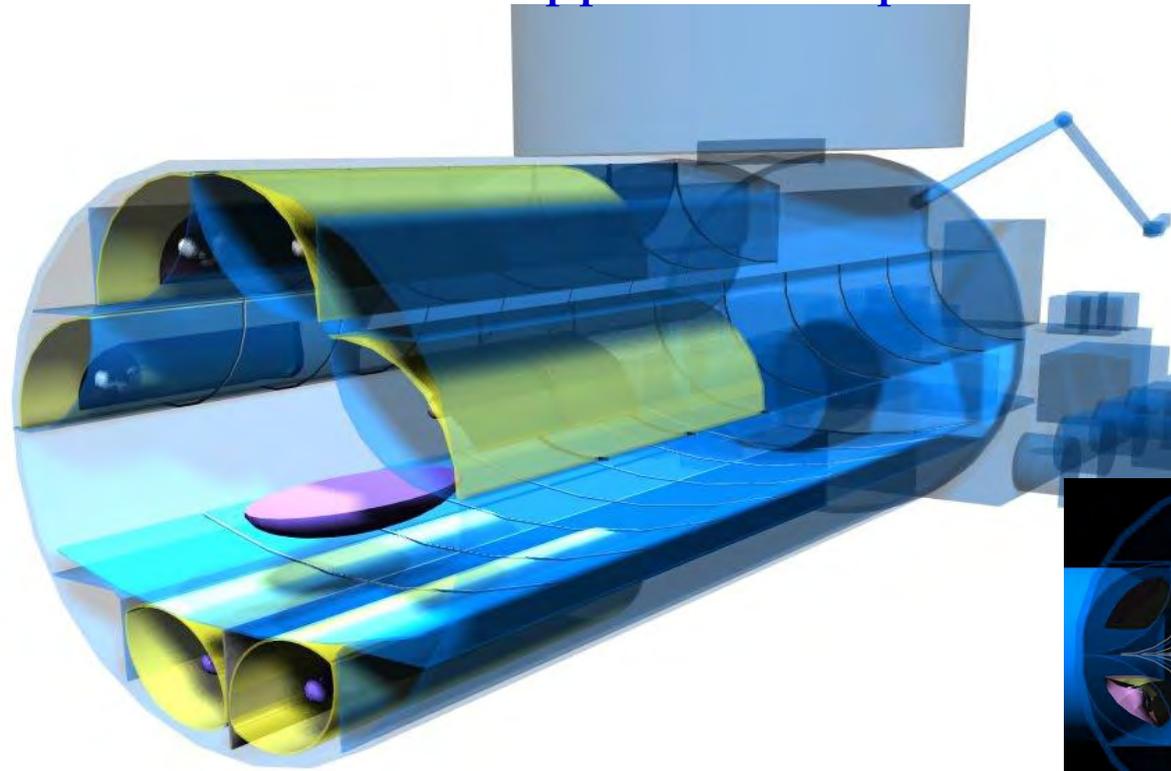
to the FUTURE: RESEARCH PROJECT 2: 2001-2008

HOW to DWELL in INTERNATIONAL SPACE STATION

artistic approaches to space / space futon project  
Kyoto City University of Arts

無重力の特性を生かした立体的な空間  
微小重力下では、空間利用が根底から見直される。  
作業、睡眠、食事、生理的、休息空間が同時存在、  
個人の活動の方向を違える事が可能。  
地上空間に無い多重の機能を多元に錯綜させて解く空間。  
地上の空間のあり方を変化させる出発点の形成が可能。

ARTISTIC APPROACHES TO SPACE  
AAS—Artistic Approach to Space 2001-2003



“宇宙における居住空間のあり方” - 池上俊郎 toshiroh Ikegami

AAS—宇宙への芸術的アプローチ2001-2003  
京都市立芸術大学—宇宙航空研究開発機構共同研究

ARTISTIC APPROACHES TO SPACE

[宇宙への芸術的アプローチ]共同研究報告会  
主催：京都市立芸術大学、宇宙航空研究開発機構 (JAXA)  
2003年12月20日[土] 14:00-17:20  
京都市立芸術大学大会館 入場無料  
京都市西京区大塚通船場13-6 TEL: 敷設課 075-334-2220

[宇宙への芸術的アプローチ]共同研究報告会  
宇宙のこころ、地球のこころ

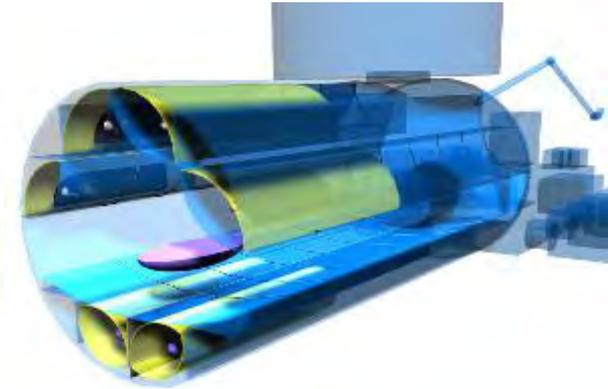
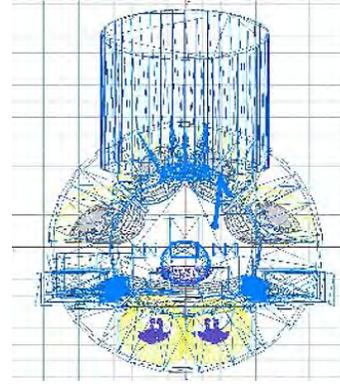
人類がはじめて宇宙に持つ恒久的な活動拠点である国際宇宙ステーション (ISS) は、自然科学・工学分野のさらなる研究開発を促すだけでなく、科学技術と芸術を結ぶ大規模な「融合」を通じて、地球の生命と文明に対する新たな視点や宇宙時代における人類の新たな自意識・生命観を形成している契機とも思われます。私たちが「宇宙への芸術的アプローチ (AAS—Artistic Approaches to Space)」研究グループは、それを促進する一つの方法として、「MUSE計画」を実行しています。この計画は、宇宙航空研究開発機構 (JAXA) および宇宙飛行士の存在を尊重して、宇宙における芸術表現の可能性・条件と方法を研究し、ISSの日本の実験モジュール「きぼう」を核とした宇宙環境における芸術プロジェクトの実現をめざして、具体的な提案と協賛実践を行う共同プロジェクトです。微小重力や閉鎖環境、地球や宇宙に開かれた新たな視野という宇宙環境の特性は、私たちの感性や知覚、認識や価値観を変え、リアリティを変容させ、人間の生活様式や行動の進化を導くでしょう。それに対応して、人間の芸術表現やコミュニケーションの意義を原点に立ち戻って検討し、知覚と感性の新たな結びつきの中核を、宇宙で活動する人々にとってだけでなく、地上に生きるわれわれにとっても意義ある宇宙文化の創造を模索することが求められます。今回、JAXAの宇宙飛行士である川口氏を迎え、これまでのJAXAとの共同研究についての報告会を行います。

プログラム  
開会 14:00  
講演 14:20-14:50  
報告 15:00-16:00  
報告者 15:00-16:00  
提出形態は、宇宙航空研究開発機構 (JAXA) 宇宙飛行士  
微小重力環境の「ライナスの毛布」—security blanket—  
宇宙における居住空間について  
微小重力下における液体物質の流形実験  
「手による宇宙」  
「宇宙観」  
KOKORO Project ワークショップ  
ディスカッション 16:20-17:20  
「宇宙のこころ、地球のこころ」



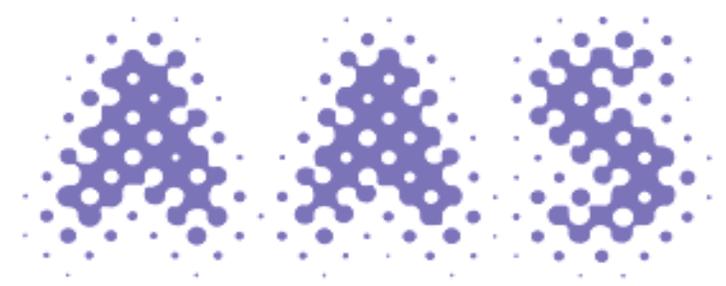
主催：京都市立芸術大学、宇宙航空研究開発機構 (JAXA)  
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HOW to DWELL on the PLANET  
LEARNING  
from INTERNATIONAL SPACE STATION

HOW to DWELL in SPACE  
NO AIR / NO GRAVITY / NO WATER  
NO ENERGY without SOLAR SYSTEM



Artistic Approaches to Space  
2001-2003

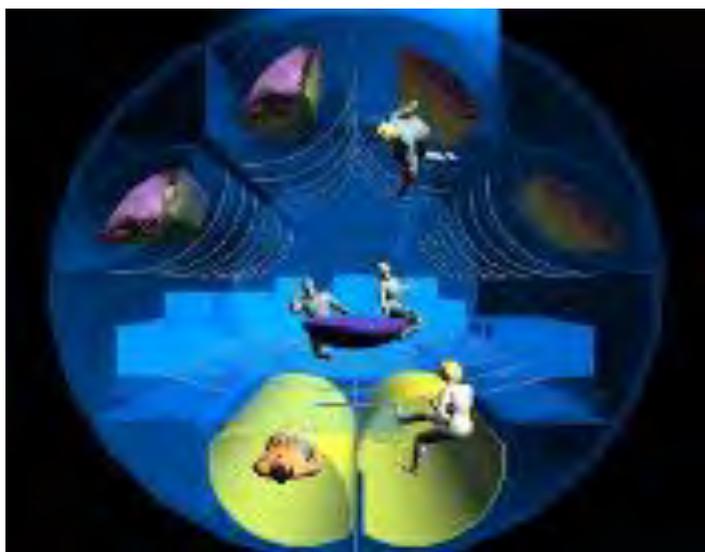
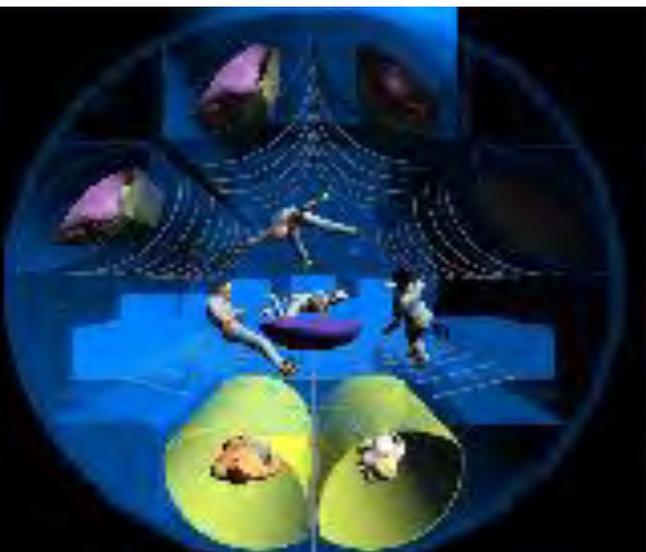
# 小重力空間“KIBO”の居住空間の提案

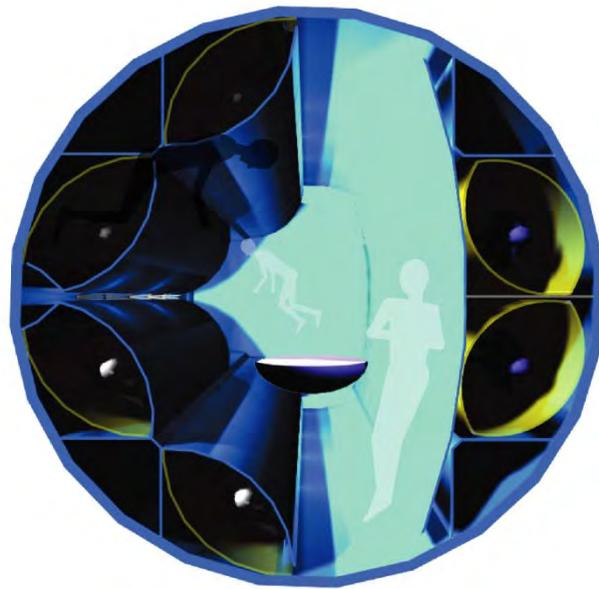
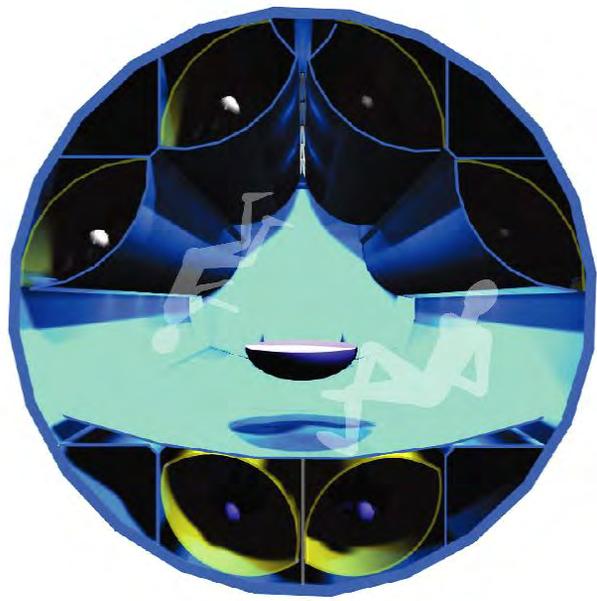
-オリエンテーションのない領域における公私空間の同時存在

宇宙ステーションは、真空・微小重力・温度差等の過酷な領域。生命体の棲息を保証する自立的閉鎖空間である。天地左右の無い、全方位アクセス可能な空間における、住まい方を探る。作業空間、睡眠空間、食事空間、生理的空間、休息空間が同時に存在し、個人と集団の生活活動の方向を同時存在させる事が可能。

内の求心性と方位決定をFLOATING TABLE“浮遊テーブル”に求め、繭状筒状のSLEEPING-SPACEを房のようにコミュニケーションスペースに配す。SANITARY“シャワースペース、おびトイレスペース”は平面に埋設。機能を多元に錯綜させて空間を解く。

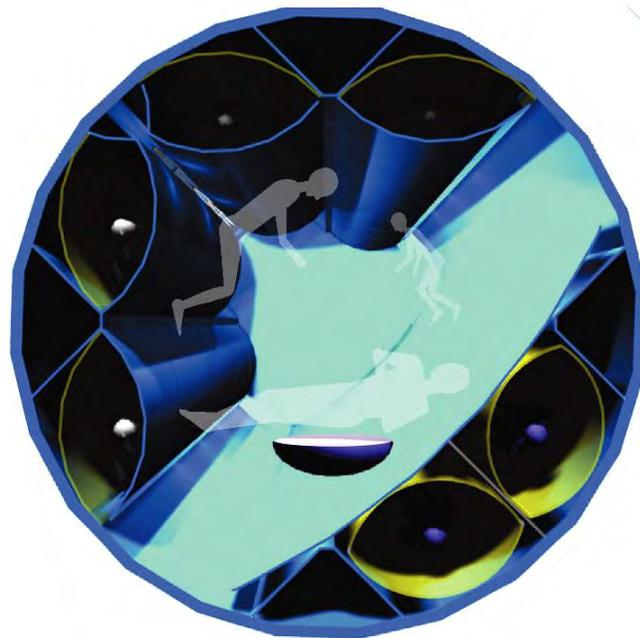
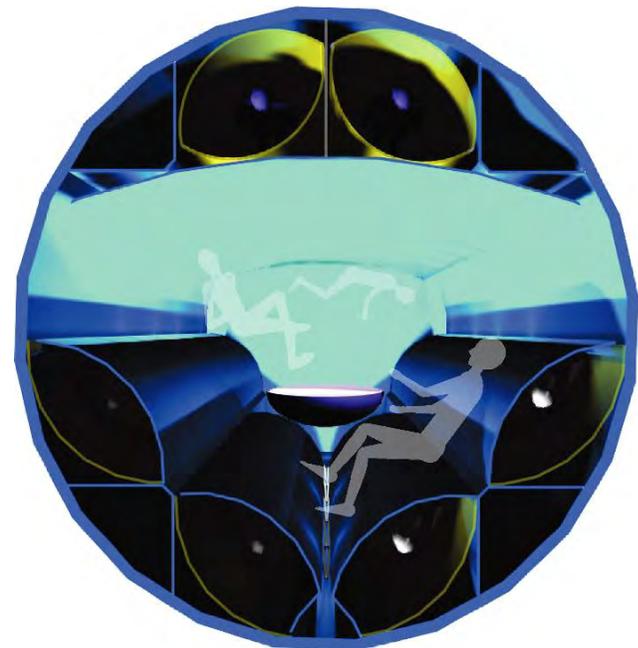
実際宇宙ステーションは各モジュール内の基本単位が決定され単位に基く拡張が可能な構成。(例えばX方向、1,066mmピッチでラック。)空間デザインは、中心に通過空間を設けて、チューブ状の生活・操作空間となっている。“ショットガンシュート”である。無重力の特性を生かした立体的な空間を配慮すべき時期。人間行動の可能性を極限まで追求することは、ステナブルでユニバーサルな居住空間のあり方についてリデザインすることになる。



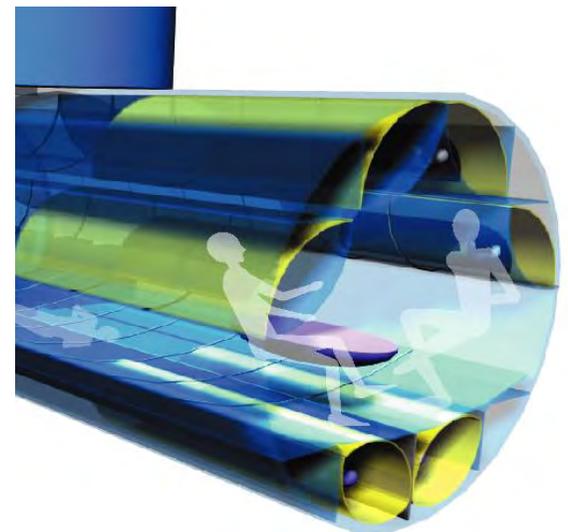


ISSと居住者のい最小居住棲息空間。直径3Mの中に公共スペースと私的空間が同居する。

トイレ・ミストシャワーバス・ 4の個室・コミュニケーションツールとしてのFLOATING TABLE



KIBO ALTERNATIVE PLAN



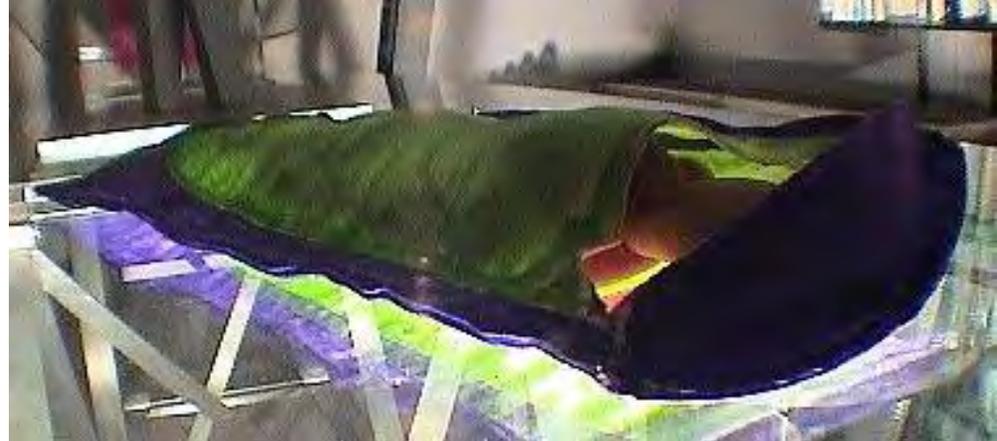


MICROGRAVITY 実験 22MAR2003

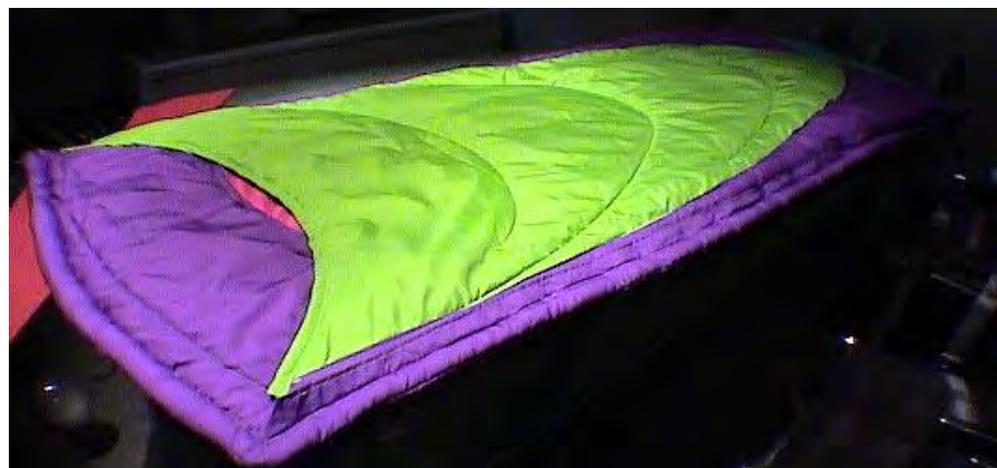
# SPACE FUTON 具体的IMAGE

京都市立芸術大学と宇宙航空研究開発機構の共同研究  
(AAS:宇宙への芸術的アプローチ)において、  
飛行士への簡易なインタビューに基づき試作品を作成。

さらに、ISS内での安全性を考慮し医学的検知を踏まえた  
「SPACE FUTON」を製作する。



WORKSHOP MODEL1



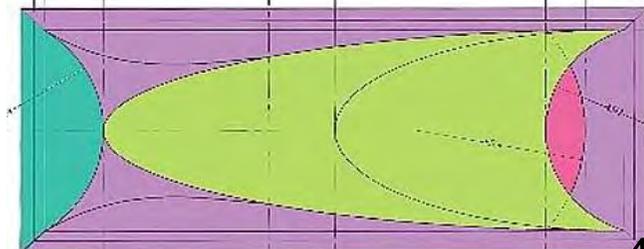
MICROGRAVITY 実験用 FUTON 試作品



WORKSHOP 試作品1

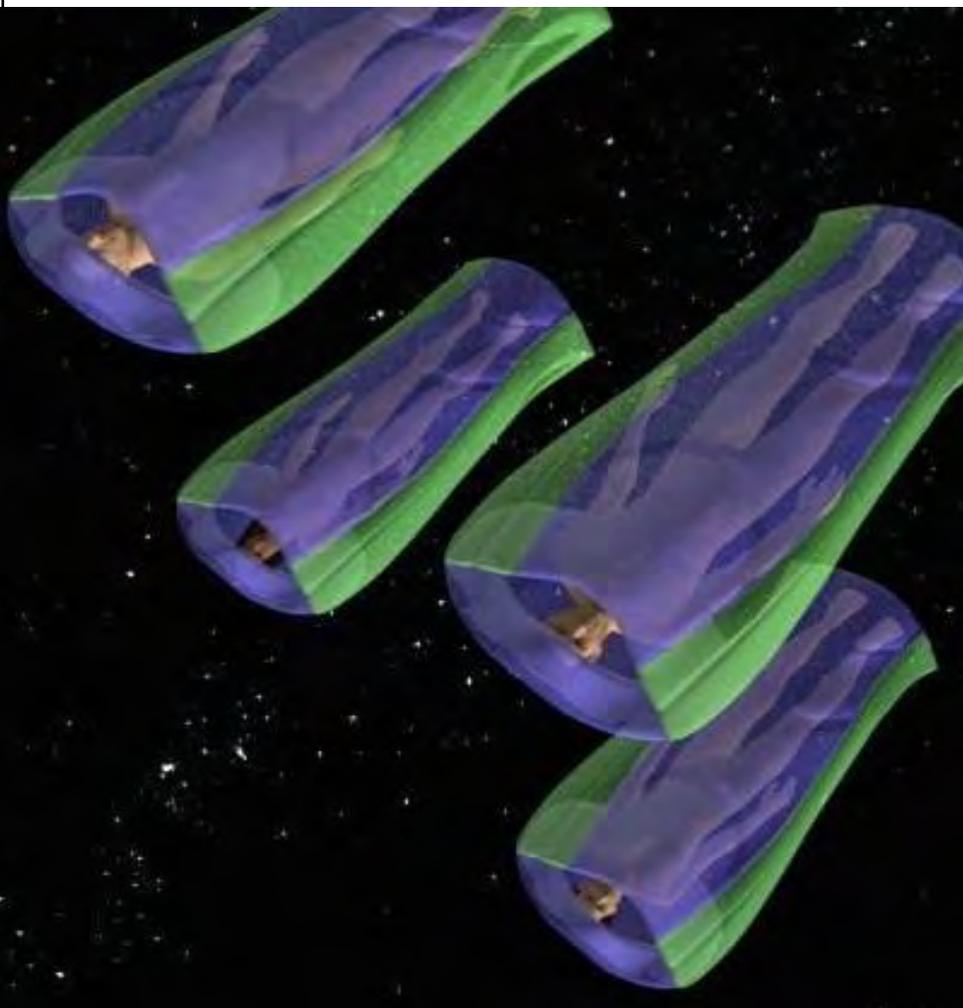


MICROGRAVITY 実験用 FUTON CAD



### UNIT - SPACE FUTON 2005-2007

CREATING BESTSLEEPING ENVIRONMENT IN LONG TERM DWELLING AT SPACE



京都市立芸術大学 Kyoto City University of Arts

池上俊郎 研究室 Toshiroh Ikegami Studio

西川リビング株式会社

Nishikawa Living Inc

宇宙航空研究開発機構 宇宙環境利用センター

Japan Aerospace Exploration Agency

Space Environment Utilization Center

It is very important 8 hours sleeping environment - time & space under Micro Gravity Situation.

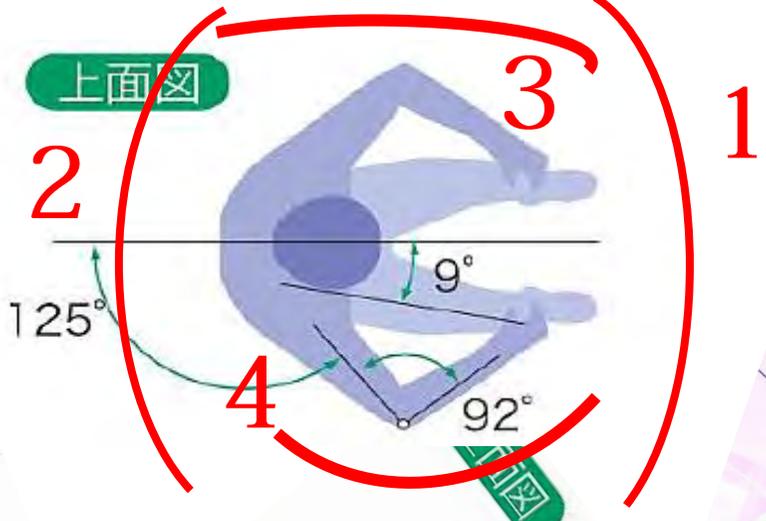
Now such Research projects is not enough for International Space Station.

We contribute nice space life for Astronauts through “Progressing Sleeping Situation in Long Term Stay”.

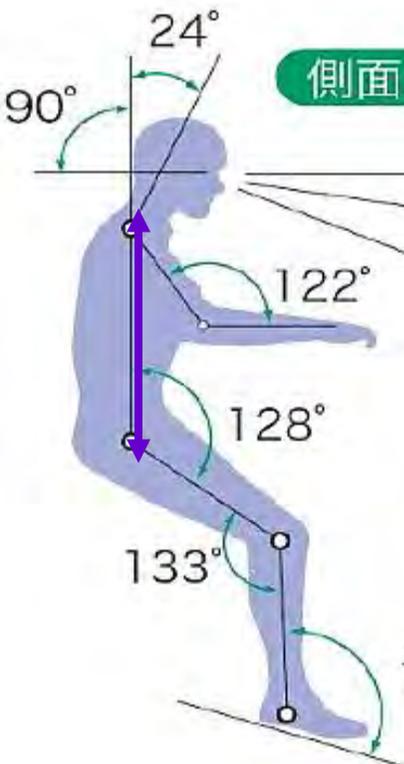
We aim to create “SPACE FUTON” -healthy with amenity through hard problems for safety.

Creating new generation FUTON

空気に包まれる寝心地を目指して

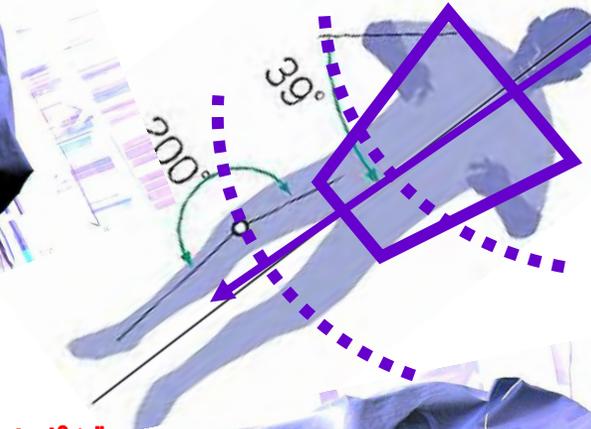


1-4 4枚の掛け布団による人体フィット

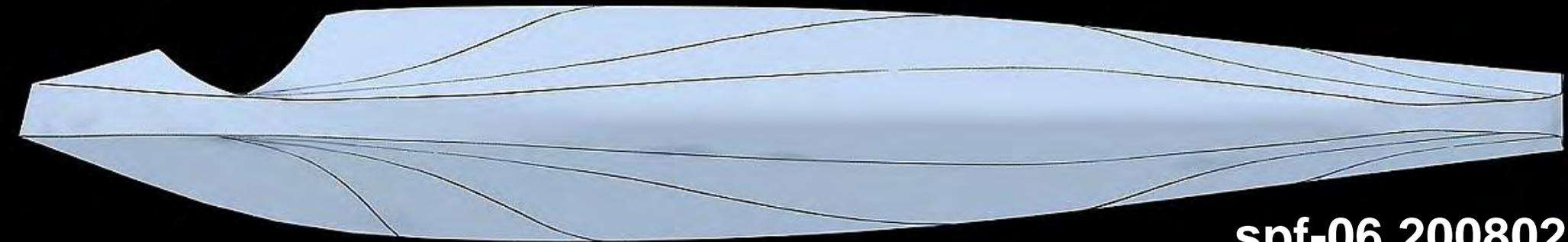
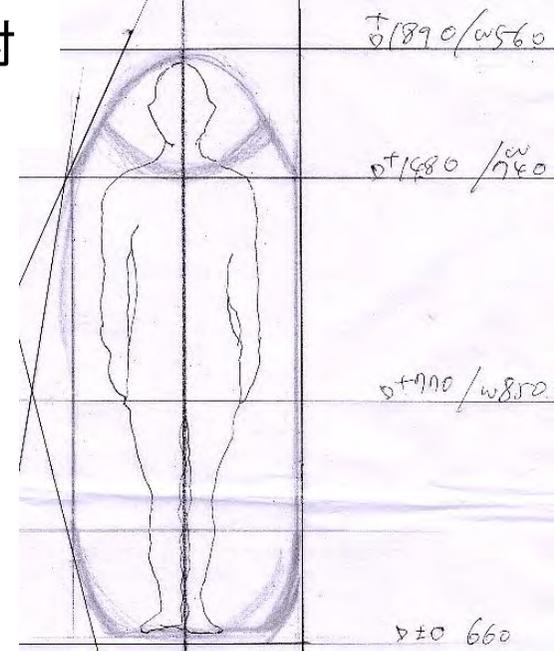


微小重力下でのニュートラルポジションは、肩周りと背骨を固定し、自由な回転活動が手足前方に展開する。

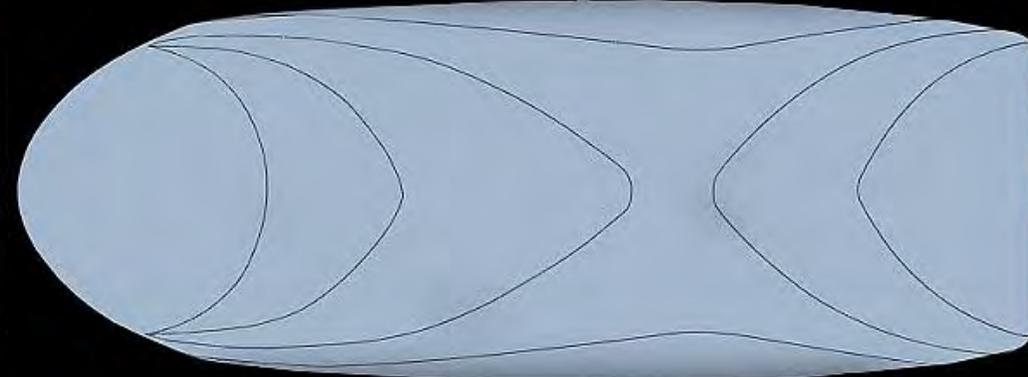
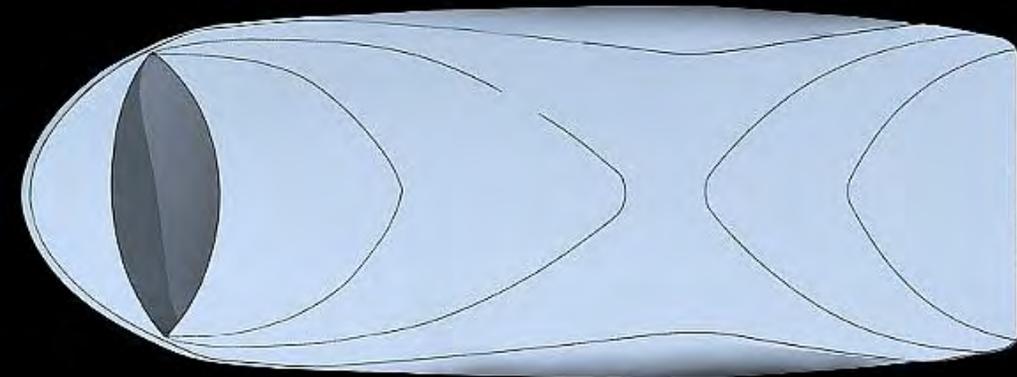
2枚の掛け布団に始まった、宇宙フutonは4枚のかけ布団による立体FUTONへと進化する。



ISS RUSSIA SLEEPING SPACE 対応



spf-06 200802





SPF-05は、ニュートラルポジションへの対応を高めた。



**SPACEFUTON SPF-05 2006**



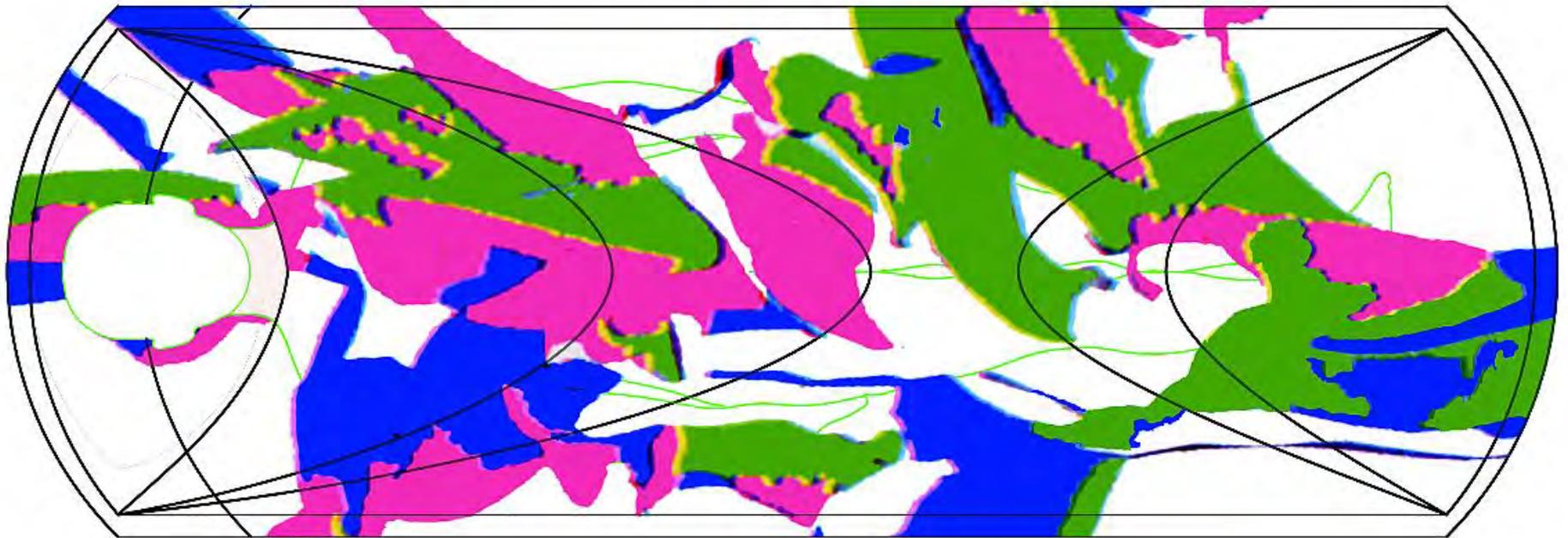
SPF-06は、内部にやわらかい襪を持つシェルターの性格を持つ



**SPACEFUTON SPF-06 2008**

## 地上の睡眠形式

美しい おもてなし介護  
輻射熱利用の優しさ  
洗濯可能な衛生睡眠環境  
楽しい山生活・寮生活



2001-2006 AAS SPACE FUTON



# Exposition for Space Technology from Kansai-Osaka Small companies 2002

### ZONE 2

"SPACE STYLE = 宇宙様式"

宇宙一現実の夢  
REAL DREAM from SPACE  
\_into SPACE

1996年1月若田光一宇宙飛行士は、日本のH-IIロケットによる1995年9月打ち上げのSFU宇宙実験-観測プラットフォームを回収しました。今初めてSFUのIRIS-紫外線望遠鏡型実物を公表展示します。また、ハッブル望遠鏡が見つめる数億光年先に広がる宇宙の姿を投影します。宇宙へのまなざしと宇宙から戻ってきた装置を通じて"宇宙一現実の夢"を実現してください。



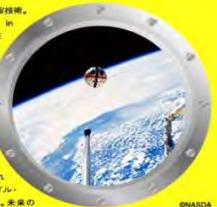
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### ZONE 3

"SPACE INDUSTRY = 宇宙産業"

衛星宇宙工業-身近な形の宇宙技術。  
AEROSPACE FACTORIES in KANSAI - SPACE TECHNOLOGY from the NEIGHBORHOOD

東大阪を核として関西エリアにもつくり技術の集積が見られます。"SPACE INDUSTRY-宇宙産業"を視野に入れた活動は、博覧技術展館に限定。観測、通信、パイオ等領域を横断する高度技術を探っています。生み出される新技術は社会のライフスタイル、生活デザインをも変化させます。未来の訪りを夢見る企業の技術が実感させます。



©NASA



## 関西宇宙工場

producer: toshiroh Ikegami  
space director: katsumi takayama  
art director: singo fujiwaki

会期: 2002年11月22afri-12月18sun  
会場: アジア太平洋トレードセンター ITM 10F  
大阪デザイン産業フェア デザインセンター: シアタインギャラリー 入場料: 無料

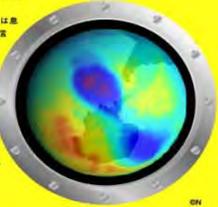
主催: COP (大阪デザイン産業フェア) 関西宇宙工場実行委員会  
共催: 大阪府 / アジア太平洋トレードセンター-株式会社

協賛企業:  
株式会社アスキー / 株式会社アドニス / アーベルシステム株式会社 / アスターテクノパワ  
株式会社 / ナカデンコムパブリック株式会社 / 株式会社日産自動車 / 株式会社日立  
株式会社 / 日本システム機械株式会社 / ハードウェア株式会社 / 株式会社フジノ  
株式会社 / アムダックテクノパワ / 山本実業株式会社 / 経営者一人一社 技術者会館研究所

### ZONE 4

宇宙インフラ  
SPACE INFRASTRUCTURE

日常生活に人工衛星技術は息づいています。観測-気象-通信-衛星を導いて社会の基盤技術が宇宙インフラの一部として形成されています。衛星は環境問題克服を目的するデータを提供し、気象-海洋-大気の変化、地上調査や資源探査、携帯電話、GPS等コミュニケーションに利用されています。私達の社会の基盤を形成しています。



©N

### ZONE 5

惑星探査  
EXPLORING the PLANETS

惑星の資源や地表の様子などを惑星探査衛星を探ります。惑星に降り立つ探査車を調査、データ収集し帰母と地球に送り、人間の植民地、資源供給基地としての可能性を具体的に探ります。加速度8000Gを1分が月の内部に打ち込まれ、調査を促進するペネトレーターなど、調査のための探査機-調査の模型が一層巨大展示されています。



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### CONCEPT

関西宇宙工場の挑戦 ~モノづくりから始まる技術と夢~

デザインは社会の変化とともにあります。現在、関西における"宇宙"を産業化しようとする企業群は、技術ネットワークを背景に人工衛星を設計し、展開する幅広い可能性を社会に還元することを構想しています。高度力、真実、温度差等の新しい環境にある"宇宙"に対する活動が切迫して来た産業はアメリカのNASA、日本のNASA宇宙開発事業団、ISAS宇宙科学研究所の協賛に明確に現れています。有人宇宙飛行は人間の肉体を及ぼす人工衛星より地球環境を監視し、未探の宇宙空間を探索して来ました。そして新たな素材や部品を産み、産業を改革し、次世代のライフスタイルを開発出来たとともに現れた。現在15か国により国際宇宙ステーションが軌道に立っています。日本人宇宙飛行が身近に活躍する時代が来入ります。こうした中核時代を"SPACE STYLE (宇宙様式)"、"SPACE INDUSTRY (宇宙産業)"の軸と捉え、"SPACE STYLE (宇宙様式)"、"SPACE INDUSTRY (宇宙産業)"の2つの対立軸を軸として具体的に構築します。"SPACE INDUSTRY (宇宙産業)"では私たちが等身大の様々な二重のメカニクスの集積から始まるをします。そして次代の生活、社会のグランドデザインを未来の発展とともに作りだすと考えています。

### ZONE 6

宇宙観測  
STARGAZER  
LOOK into the UNIVERSE

人類は夜空を見つめる宇宙への好奇心を捨ててきました。宇宙空間に配された望遠鏡衛星は数10億光年に広がる宇宙の誕生と死の姿までも知らせくれます。宇宙科学研究所の太陽物理学衛星"よこすか(陽光)"はX線やガンマ線により、太陽の最上層が一面を数百万枚の美しい画像により世界的に伝えています。その感動を会場でご確認ください。

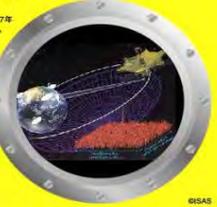


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### ZONE 7

人工衛星とロケットの発展  
SATELLITES and ROCKETS

人工衛星ロケットの発展は1997年2月打ち上げの衛星天文衛星"はるか"HALCA"と打上に利用したMVCロケットに説明が明かされます。"はるか"は地上の電波望遠鏡群とともに口径3万kmの巨大電波望遠鏡を形成し、銀河や宇宙の果てを観測するVLBI計画を行っています。興味深い形式を持つ衛星とその打ち上げ光景が映像や模型で展示されます。



©ISAS

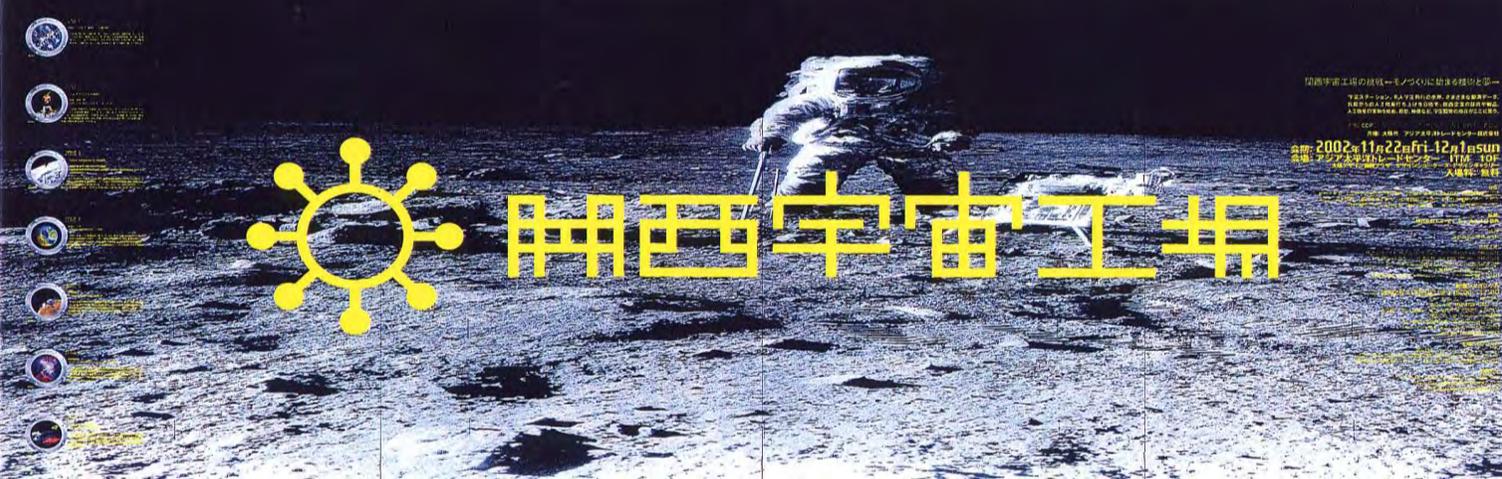
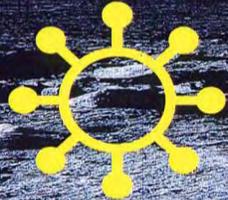
### ZONE 1

MAN in SPACE 地球人 - 宇宙に飛ぶ

1969年7月26日に人類が月に降り立ちました。建設中の国際宇宙ステーションは15ヶ国の協力の賜物です。2003年3月、NASA宇宙開発委員会世界初級一宇宙飛行士のミッションが予定されています。日本が製作中の宇宙空間の有人活動施設"ゆづり"の構築をはじめとして有人宇宙飛行の様々な活動にご期待ください。



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# 関西宇宙工場

関西宇宙工場の挑戦-モノづくりから始まる技術と夢-

会期: 2002年11月22afri-12月18sun  
会場: アジア太平洋トレードセンター ITM 10F  
大阪デザイン産業フェア デザインセンター: シアタインギャラリー 入場料: 無料

## ZONE 2

### "SPACE STYLE = 宇宙様式"

宇宙—現実の夢  
REAL DREAM from SPACE  
...into SPACE

1996年1月若田光一宇宙飛行士は、日本のH-2ロケットによる1995年3月打上のSPU=宇宙実験-観測プラットフォームを回収しました。今回初めてSPUのDIRTS=赤外線望遠鏡部実物を公式展示します。またハッブル望遠鏡が見つめる数10億光年に広がる宇宙の姿を投影します。宇宙へのまなざしと宇宙から戻ってきた装置を通じて"宇宙—現実の夢"を実感してください。

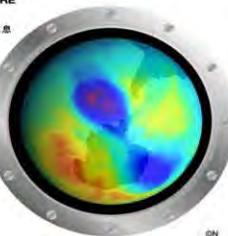


©NASA

### 宇宙インフラ SPACE INFRASTRUCTURE

日常生活に人工衛星技術は息づいています。観測-気象-通信衛星等を通じて社会の基盤技術が宇宙インフラの一環として形成されています。衛星は環境問題克服を目標すデータを提供し、気候、海洋、大気の変化、地上異常や資源を監視し、携帯電話、GPS等コミュニケーションにも利用されています。私達の社会の基盤を形成しています。

## ZONE 4

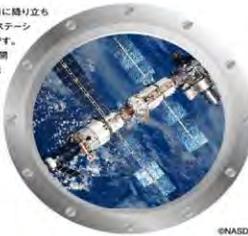


©N

## ZONE 1

### MAN in SPACE 地球人—宇宙に帰る

1989年7月20日に人類が月に降り立ちました。建設中の国際宇宙ステーションは19ヶ国の協力の賜物です。2003年3月、NASA宇宙開発事業団野口聡一宇宙飛行士のミッションが予定されています。日本が製作中の宇宙空間の有人活動施設"きぼう"の機型をはじめとして有人宇宙飛行の様々な活動をご覧いただけます。



©NASA

## ZONE2 SPACE STYLE 宇宙様式

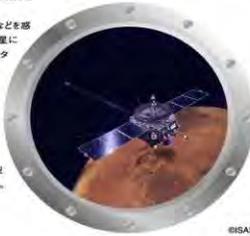
## UNIVERSAL SUSTAINABLE LIFE STYLE

- 基盤技術 (素材/システム)
- NANO TECHNOLOGY
- BIO TECHNOLOGY
- ECOLOGICAL TECHNOLOGY

## ZONE 5

### 惑星探査 EXPLORING the PLANETS

惑星の資源や地表の様子などを惑星探査衛星は探ります。惑星に降り立ち地表面を調査、データ収集し映像を地球に送り、人類の居住地、資源供給基地としての可能性を具体的に探ります。加速度8000Gをうけながら月の内部に打ち込まれ、構造を探索するペネトレーターなど、調査のための探査機-装置の機型が一部順次大展示されます。



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## ZONE 6

### 宇宙観測 STARGAZER LOOK into the UNIVERSE

人類は夜空を見つめ宇宙への尽きぬ興味を抱いてきました。宇宙空間に配された望遠鏡衛星は数10億光年に広がる宇宙の誕生と死の姿までも知らせてくれます。宇宙科学研究所の太陽物理宇宙望遠鏡"ようこう(耀光)"は次緯やガンマ線により、太陽の高エネルギー現象を数万台の美しい画像より視覚的に伝えました。その感動を会場でご確認ください。



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## ZONE 7

### 人工衛星とロケットの役割 SATELLITES and ROCKETS

人工衛星とロケットの役割を、1997年2月打上の電波天文衛星"はるか"HALCAを打上に利用したMVRコケットにより説明します。"はるか"は地上の電波望遠鏡線群とともに口径三万kmの巨大な電波望遠鏡を形成し、銀河や宇宙の果てを観測するVLBI計画を行っています。興味深い形式を持つ衛星とその打上げ光景が映像や機型で展示されます。



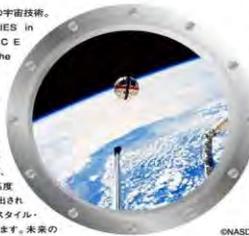
©ISAS

## ZONE 3

### "SPACE INDUSTRY = 宇宙産業"

関西宇宙工場—身近な街の宇宙技術。  
AEROSPACE FACTORIES in KANSAI—SPACE TECHNOLOGY from the NEIGHBORHOOD

東大阪を核として関西エリアにもつくり技術の集積が見られます。"SPACE INDUSTRY=宇宙産業"を視野に入れた活動は、情報技術を基盤に航空、環境、ナノ、バイオ等領域を横断する高度技術を探っています。生み出される新技術は社会のライフスタイル、生活デザインをも変化させます。未来の始まりを参加企業の技術が実現させます。



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DESIGN

ZONE7  
SATELLITES and ROCKETS  
人工衛星とロケットの観測

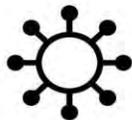
ZONE6  
STARGAZER LOOK into the UNIVERSE  
宇宙観測

ZONE5  
EXPLORING the PLANETS  
惑星探査

ZONE4  
SPACE INFRASTRUCTURE  
宇宙インフラ

ZONE1  
MAN in SPACE  
地球人—宇宙に帰る

## ZONE3 SPACE INDUSTRY 宇宙産業



# 関西宇宙工場

PRODUCER:TOSHIROH IKEGAMI  
SPACE DIRECTOR:KATSUMI TAKAYAMA  
ART DIRECTOR:SINGO FUJIWAKI

# SIMULATING “the DWELLING SPACE”

for HOW WE LIVE NOW

research projects 2000-2008

NOW :RESEARCH PROJECT 3:2003-2008

HOW WE ACT for ECODESIGN SOCIETY

OSAKA MODEL of CIRCULATION ORIENTED SOCIETY  
through CASE STUDY of EXISTING CITY & NEIBORHOOD NATURE

Team axis4 / npo ecodesign network

NPO法人 ECODESIGN NETWORK  
 既存都市・近郊自然の循環型再生大阪モデル  
 ECnnO

Osaka model of circulation oriented society  
 through case study of  
 existing city & neighborhood nature

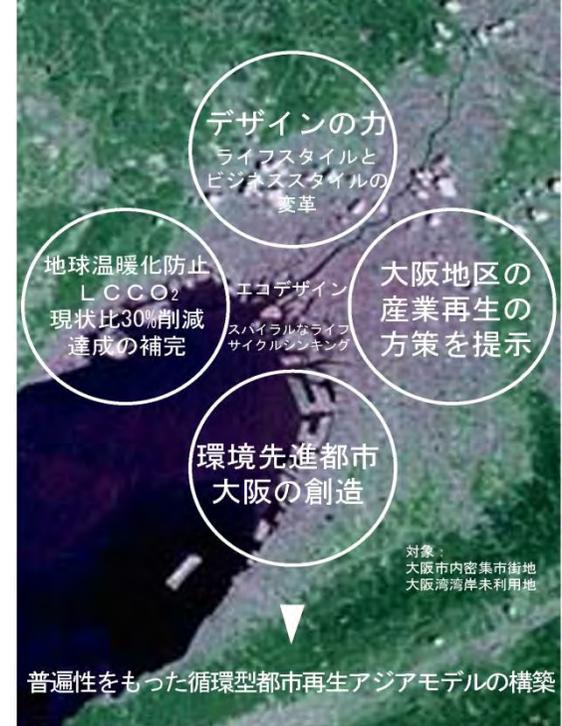
独立行政法人科学技術振興機構「循環型社会」領域



COOLHABIT・GREENWORKーアジアモデルの模索  
 多様な自然エネルギー／食料／緑化／水循環  
 新たなライフスタイル・都市文化・都市景観の創造



共有する伝統を喪失した温帯の海に開かれた循環型環境共生都市の“日本モデル” “アジアモデル” の構築  
 “既存都市・近郊自然の循環型再生を図る大阪モデル”は、  
 温帯の海に開かれた良好な位置にもかかわらず伝統性を喪失した同様な諸都市の手本としての“日本モデル”  
 であり、未曾有の変化を続けるアジアの諸都市の先駆的“アジアモデル”となる。



対象：  
 大阪市内密集市街地  
 大阪湾沿岸未利用地

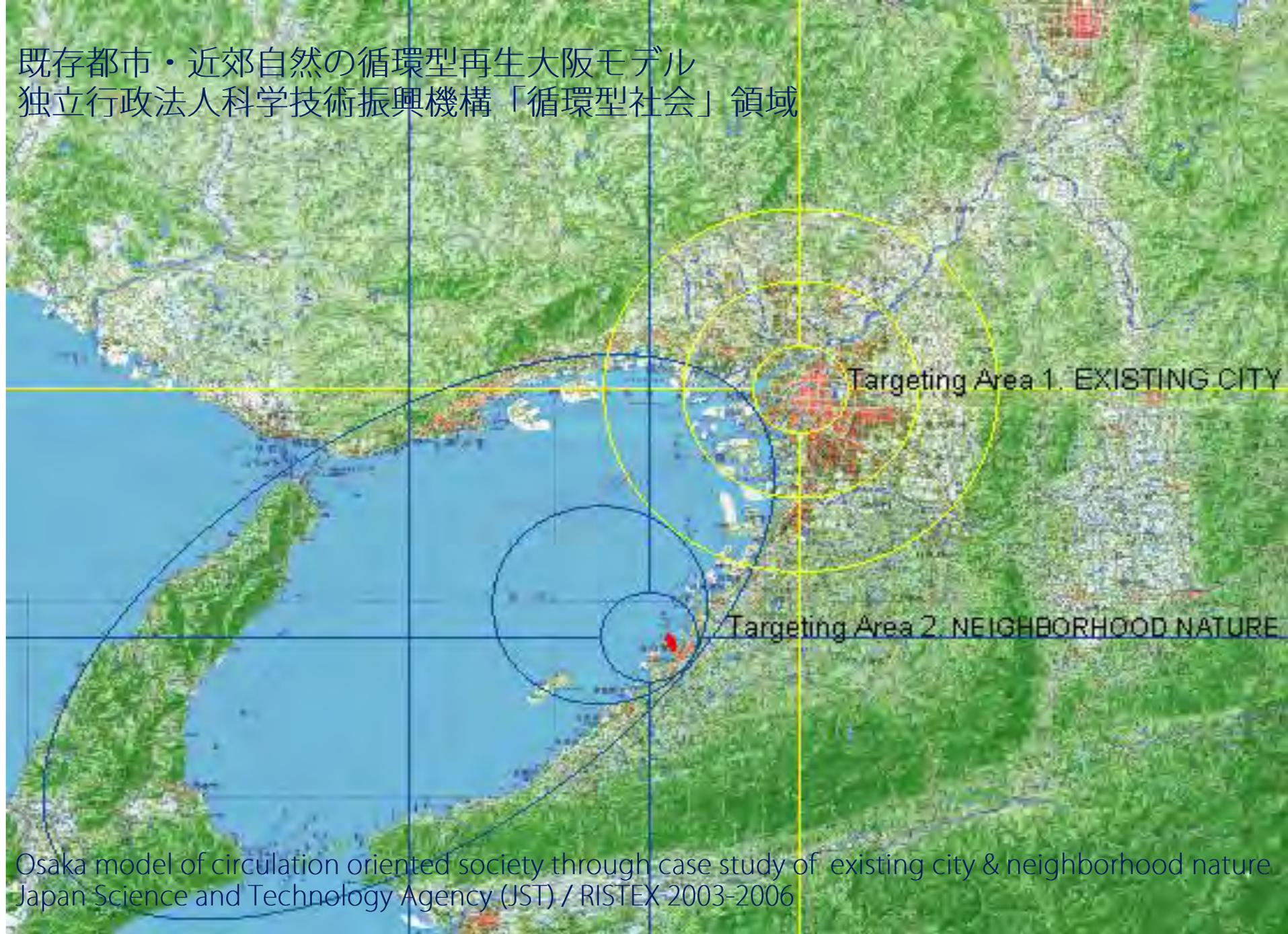
普遍性をもった循環型都市再生アジアモデルの構築



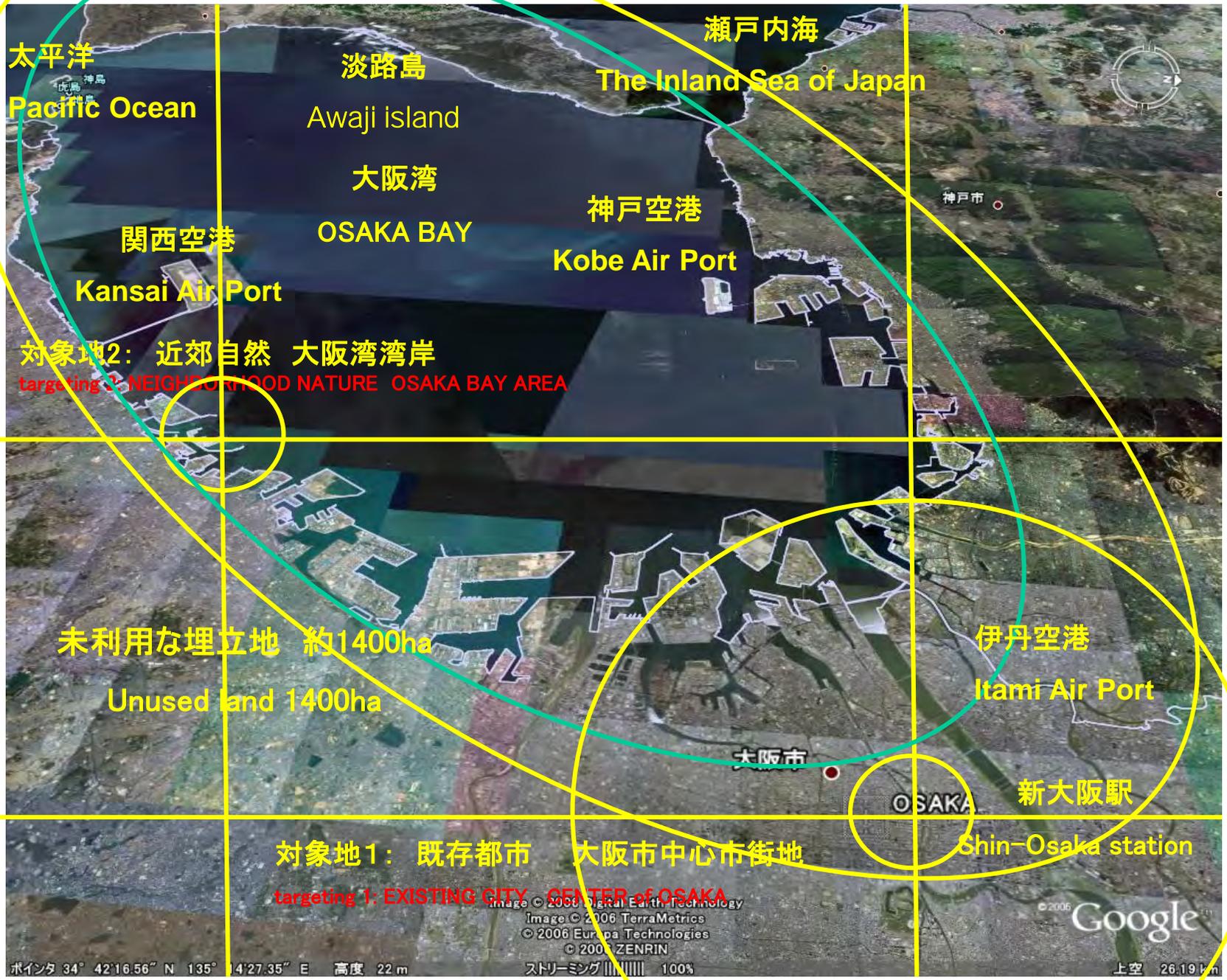
大阪湾沿岸未利用地  
 大阪市内密集市街地

大阪地区の産業再生の方策を提示  
 LCCO2 現状比30%削減達成を補完

既存都市・近郊自然の循環型再生大阪モデル  
独立行政法人科学技術振興機構「循環型社会」領域



Osaka model of circulation oriented society through case study of existing city & neighborhood nature  
Japan Science and Technology Agency (JST) / RISTEX 2003-2006



太平洋  
Pacific Ocean

淡路島  
Awaji Island

瀬戸内海  
The Inland Sea of Japan

大阪湾  
OSAKA BAY

神戸空港  
Kobe Air Port

関西空港  
Kansai Air Port

対象地2: 近郊自然 大阪湾湾岸  
targeting 2: NEIGHBORHOOD NATURE OSAKA BAY AREA

未利用な埋立地 約1400ha  
Unused land 1400ha

伊丹空港  
Itami Air Port

対象地1: 既存都市 大阪市中心市街地  
targeting 1: EXISTING CITY CENTER of OSAKA

新大阪駅  
Shin-Osaka station

Research Project  
Osaka Model of Circulation-Oriented Society through  
Case Study of  
Existing City & Neighborhood Nature

2003-2006

既存都市近郊自然の循環型再生大阪モデル 2003-2006

Works by NPO Eco Design Network Team AXIS4

独立行政法人 科学技術振興機構 循環型社会領域  
Results from Japan Science and Technology Agency (JST) /  
RISTEX 2003-2006 -Research Institute of Science and Technology for Society

# 研究 research

循環型再生大阪モデルは研究と実務的かつ効果的提案の双方を目指します。  
The circulation-oriented Osaka society model aims at exploring and developing .

対象地1： 既存都市 = 大阪市中心市街地：密集都市中心部のヒートアイランド化の脱却の手法を探る

対象地2： 近郊自然 = 大阪湾湾岸：湾岸の未利用地とその周辺海域における都型近郊農林水産業の展開の提案

1: Existing City : targeting the densely populated urban area of Osaka. Exploring the departure of the technique of heat island phenomenon.

2: Neighborhood Nature : targeting the unused land in the Osaka Bay coastal area.

Proposal for development of urban-type agriculture, forestry and fisheries industry.

このモデルは文化、歴史、技術、社会を持続可能な構造に統合し、人工的都市と自己回復性のある自然が共存します。

This model integrates culture, history, technology, and society in a sustainable structure that allows man-made cities and self-recovering nature to exist together.

戦略 : 生活美学としてのエコデザインによって創造する循環型社会  
Strategy: to construct a sustainable society using lifestyle aesthetics and sensitivity developed through eco design.

達成目標 : 地球温暖化防止 LCCo2現状比30%削減を補完

Target Level: prevention of global warming by reducing LCCO2 emissions by 30% of current level.

実行計画 : フラットな産業構造の形成・機械仕掛けから生命体利用へ  
(1次産業への視座)

Plan of Action: Build a flat-type industrial structure. Migrate from over-use of technology to application of natural life forms  
(perspectives for primary industries).

目的地 : 環境先進都市大阪の創造

Target Area: create an environmentally advanced city - Osaka.

結果 : 普遍性をもった循環型都市再生ASIA MODELの構築

End Result: realize an Asian model of a circulation-oriented city with universal applications.

# Targeting Area 1. **EXISTING CITY** the center of Osaka City : main urban district

The greening of the area to relieve the heat island phenomenon affecting the center of Osaka.  
The targeted existing city area is a 2.5km built-up area in the center of Osaka City.

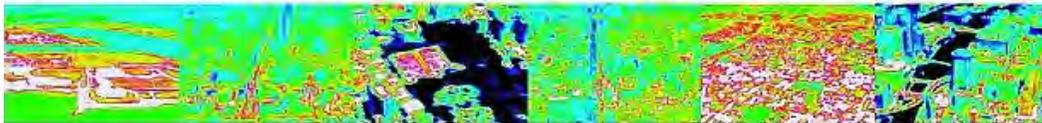
## COOL HABIT GREEN WORK



- Method of Relieving the Heat island Phenomenon:  
employ streams, streets and unused plots of land , plant greenery to create a wind path
- Biomass Society:  
Society that develops on a parallel to solution of the heat island phenomenon with forest
- Examples of Advantageous Effects of Design:  
Adding appeal to a community and mass transportation with the design

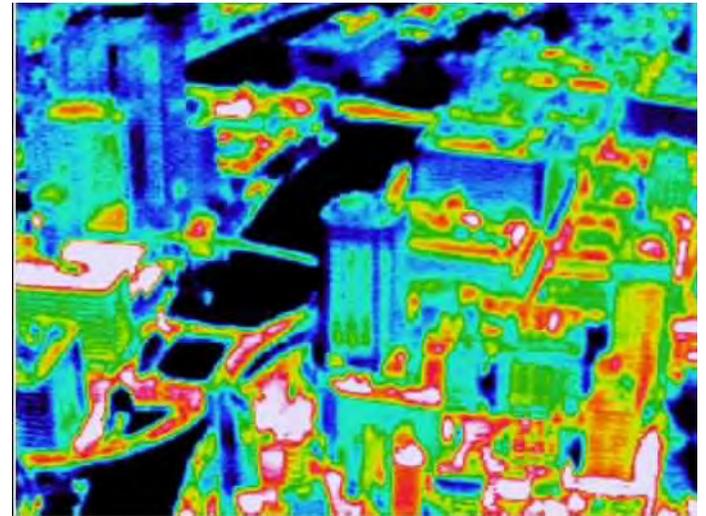


yumeshima    naniwa-suji line    utsubo park    modoh-suji line    temgachaya    nakanoshima



photographing on 8th August 2005

HEAT ISLAND phenomenon  
EXISTING CITY  
CENTER of OSAKA  
THERMO CAMERA  
20050808



# Targeting Area 2. NEIGHBORHOOD NATURE

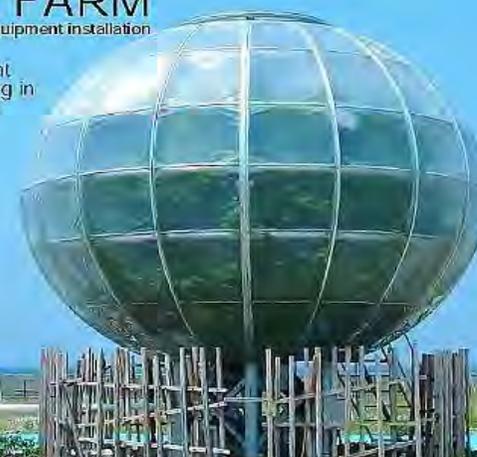
## Osaka Bay and coastal area

The state of urban agriculture, forestry and fisheries aimed at effectively using the 1600ha unused industrial landfill area and adjacent seawaters around Osaka Bay.

### SEASIDE FARM

experimental agricultural equipment installation

- Land Report: experimental equipment setup for factory farming in urban areas (improved unused landfill area)



Fixing the amount of CO<sub>2</sub> in the atmosphere by life, organisms and resources  
 Cleaned sea water and an economic base Revitalization a nature in areas surrounding cities and a city of 10 million people  
 Creating culture-city by agriculture, forestry and fisheries in its sphere

#### Implementing Nature Recovery that leads to restoration of unused industrial land and adjacent sea waters

Unused industrial lands, a result of shifts in product manufacturing and relocation of industry, now lie idle. If left as is, the land could become barren. On the other hand, it could be recovered by installing environmentally low impact industries such as agriculture, forestry and fisheries. We can also simultaneously recover the adjacent seawater. For example, by implementing factory agriculture, we can produce between 5 and 10 harvests per year. Saving rainwater from advanced circulation equipment fixed to roofs, walls and streets in the area. In the nearby waters, we would install equipment that would provide man-made assistance to encourage faster recovery.

-Equipment Outline:  
 cylinder of 3m diameter, 5m height, set 1.7m  
 External coating - ETFE film.(100%)  
 Structure: steel frame.  
 Internal flooring: expanded metal.

Agricultural equipment providing liquid plow farming based on procured energy.

-Equipment Outline: Electricity: photovoltaic generation+ cogeneration-type hot water heater + commercial power. Heat: cogeneration-type hot water heater -CO<sub>2</sub> for cultivation: cogeneration-type Hot water heater Water: rain water+ desalinated seawater (small amount) Cooling: spot cooler+ heat pipe Ventilation: ventilation fan

### SEA FARM

experimental equipment setup for recovery of marine organisms for urban marine industries

- Ocean Report: experimental equipment setup for recovery of marine organisms for urban marine industries



Coexistence of various life organisms - tidelands, shoal, fishing ground and seaweed beds  
 Fixing carbon by food-chain Use a recycled resources adhesive property  
 Cleaning up the waters of the bay by capability of organisms and plants

#### Implementing Nature Recovery that leads to restoration of unused industrial land and adjacent sea waters

As sea organisms recover and proliferate, we can also proceed with the restoration of the fishing industry in the Osaka area. It may not be an overstatement to say that Osaka is close to becoming a desert. Promoting the COOL ISLAND effect on the coast of Osaka, we can restore this area to a level that would offer residents a natural beach area and enjoyable ocean waters. In attempting these projects, we aim at building up industry, enhancing self-sufficiency for food supply, suppressing the heat island phenomenon, and creating natural energy. We will also improve the impoverished soil and reuse it as a source for CO<sub>2</sub> absorption through forestation. This endeavor implements low-impact primary industry to recover nature in unused land and restore adjacent sea areas to a clean, natural state and targets not only artificially improved areas throughout Japan, but also the future recovery of nature in artificially improved lands throughout the world.

-Equipment Outline :  
 Upper main body A / image of tidelands and beach area circular cone of 3m in diameter, 1.7m in height.  
 Lower body B / image of seaweed beds  
 Lower body B: depth 1m, height 0.5m.  
 Porous and carbonated steel slag block float C

A and B is made from an eco-material and encouraging the growth of living organisms. This eco-material reduces the amount of CO<sub>2</sub> generated, promoting photosynthesis with the formation of algae, and fixing the amount of CO<sub>2</sub> in the atmosphere.

-Structure:  
 1. Upper main body A: hydro-solidified steel slag block (alternative to concrete) + blast-furnace, granulated slag used for breeding + steelmaking slag dike  
 2. Lower body B: Porous and carbonated steel slag block  
 -Float C: foam polystyrene



# Osaka model of circulation oriented society through case study of existing city & neighborhood nature

BY DESIGN : REALIGNING SOCIETY & REVOLUTIONIZING LIFESTYLE

## Summary

The world is changing rapidly with more countries able to provide a lifestyle once known only to advanced countries.

Mega city developments and transportation net works expand, warmer temperatures spread globally, and environmental stress factors increase. The role of design, aiming to create a prosperous quality of life, is to boost the quality and progress of environmental technology while enhancing design functions. We also aim to reduce greenhouse gas emissions, while demonstrating the vast possibilities design has to offer as contributions to existing city revitalization.

## The Target Society

A biomass-based society that includes agriculture, forestry and fisheries in its sphere.

## The Target City

City that is an amalgamation of new technology and nature, and one that has what it takes to press on with self-improvement and self-cultivation.



Targeting Area 1. EXISTING CITY

: main urban district Osaka City.

Targeting Area 2. NEIGHBORHOOD NATURE

: Osaka Bay and coastal area.

## The Progress of Environmental Issues

As the range of human activities continues to expand, so does the transfiguration of nature. Now we can see that every country on earth bristles with skyscrapers, and nations through out the world have come to reach the same standard of living as the most advanced countries. To overcome environmental issues, we must draw upon conventional and state-of-the-art technology to shorten the time lag that prevents us from achieving a hydrogen-based society, to coexist with all living organisms and increase our use of natural energy.

**Attempting to Define the following Five Topics :**

1. Formation of urban ecologically self-sufficient society
2. Eco design
3. Individual infrastructure revitalization
4. Technology that can be used directly on the spot (local) by the user
5. New model of society that can reduce environmental impact

## 1. Building a State-of-the-Art Circulation City: Osaka

Osaka was being transformed industrialization at the cost of losing its traditional distinctiveness and without any targeted homogeneous landscape.

The model includes reduction of the heat island phenomenon affecting Osaka and expands the recovery of the polluted seawater in Osaka Bay. While reducing the stress on the environment, we hope to revitalize the industrial infrastructure into a integrated industry organization, assimilating primary, secondary and tertiary industries.

In addition, we expect to realize a circulation-oriented society through eco-designs that aim at creating a sensitive society. While creating lifestyle structures, rich city culture, urban landscapes, our plan encompasses the use of technology to promote the heat island phenomenon relief, food procurement, water circulation system, and various natural, clean energy methods. Our research also covers methods to promote atmospheric stability and escape from poverty.

## 2. By Design:

### The Possibilities of Eco-Design

Creating a model of "Revitalizing Circulation-Oriented Cities & Nature" through Eco-Design as Lifestyle Aesthetics Eco Design is one method of progressing toward a stable level of comfort by creating a new lifestyle that encourages us to arrange our daily lives help resolve our environmental problems. From using mechanical devices to various life forms, we live in a time in which draws in sophisticated technology, and we need to find the right balance of technology and life forms. The aim of eco-design is to create a total social system that enables nature to activate its innate self-recovery abilities and that leaves little impact on the environment. At the same time, eco-designs must arouse a new social sensitivity.

Eco-design is currently based on 8 principles:

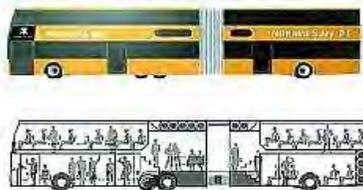
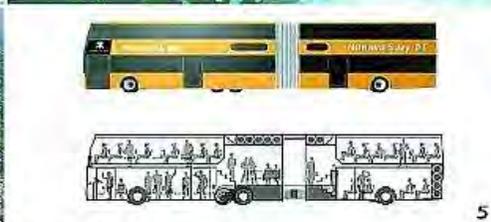
(1.residents (2.culture (3.welfare (4.regionalenvironments 5.global environment (6.crisis management (7. information management (8.financial planning.

Life Cycle Assessment (LCA) is a method often used in assessing and reducing detrimental environmental impacts.

LCA is used to give a general assessment of the amount of energy and resources used at each stage of a product's life cycle - raw materials, manufacturing, transport, primary use, recycling. We need to incorporate the ability for a product to have an expanding, spiraling number of applications from its primary use. So the challenge for designers is to apply "Life Cycle Thinking" within the functions of his/her job by







5

- 1. COOLHABIT GREENWORK**  
Osaka Prefecture Heat Island: Osaka is the worst city in Japan with over 40 days of heat island phenomenon. We have announced a slogan stressing cool summer life, work in an environment surrounded by trees.
- 2. COOL CORRIDOR - COOL TUBE - COOL SPOT**  
Streams and streets run through the center of Osaka, creating a path of breezes. We utilize these paths effectively as COOL CORRIDORS, COOL TUBES and COOL SPOTS. We propose the following:
  1. Plant trees along the streams; the transpiration of water and leafy shade creates an effective induction of water and land breezes.
  2. Promote the planting of trees along streets, resulting in increased use of streets with sidewalks as city, regional, community and daily life main thoroughfares.
  3. Install surface biotopes to enable use of rainwater from streets and cooling water from buildings.
  4. Employ more parks and unused lots as COOL SPOTS, creating more greenery and open spaces. Use rooftops and terraces in areas with minimal open lots, planting much greenery for the cooling effect. Add greenery to walls of buildings to add to the enhancements.
  5. Use material of high water retention/transpiration capability for road surfaces.

- 3. BIG TREE**  
Osaka currently has very little timber for forming leafy shade. Trees lining the boulevards are few and far between in comparison with other cities. Large trees and effective greenery is what we need.
- 4. LANDSCAPE DESIGN**  
One of the essential methods of escaping the HEAT ISLAND phenomenon is by aggressively employing LANDSCAPE DESIGN, making the city cooler and easier to inhabit. COOL CORRIDOR OHE-BASHI  
One example of a COOL CORRIDOR using the ground-level section of the Dojima-river recreation trail. (Proposal for the Keihan Railway Nakanoshima Shines Ohe-bashi Station Competition) Hydraulic turbine is used along the Dojima River, flowing the stream water into a recreation trail, then returning the stream to the river as a cataract, producing a coolant effect in the area.
- 5. NANIWA SUZY**  
Double-decker, two-car Clean Energy Bus NANIWA SUZY is a double-decker, two-car bus designed to run on clean energy. The plans intend for it to be used on around-trip course in Osaka City, along the Naniwa-suji Avenue. At present, 40m-wide Naniwa-suji Avenue, a major street in the middle of Osaka, is tentatively pinned for a subway line in the future. Yet there is a relative amount of greenery in the area, and it is a comfortable, well-organized residential area. The NANIWA SUZY bus would be an effective and pleasant replacement for the planned subway.

# Targeting Area 2. NEIGHBORHOOD NATURE

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## Nature Recovery Manual

A guide for exploring revitalization of unused (forest), and surrounding oceans. At present, there is approximately 1800ha of unused coastal land within Osaka Prefecture. With "Osaka Bay is Alive" as our overall theme, we are working at recovering and expanding the nature that has nearly disappeared from the Osaka area. At the same time, exploring the potential of boosting industry in conformity with the new circulation-oriented society.

Osaka Bay and coastal area

## SEA FARM

experimental equipment setup for recovery of marine organisms for urban marine industries  
-Ocean Report:  
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Coexistence of various life organisms - tidelands, shoal, fishing ground and seaweed beds  
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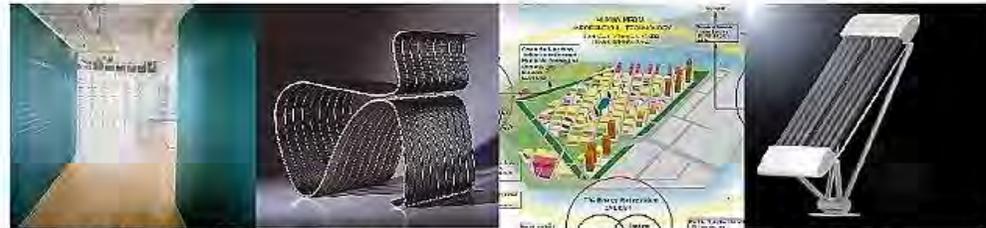
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  2. Lower body B: Porous and carbonated steel slag block
- Float C: foam polystyrene



## The Effectiveness of Design :

Now is the time for designers to take environmental issues head on and work with professionals in other fields to identify solutions in the shortest time possible.



### SHOWROOM DESIGN

: Interior Design  
This example shows an office converted into a showroom. Glass was used for walls. Bamboo, as sustainable material, was used for the flooring. An open design was selected to reap the benefits of natural light, such as low energy consumption to illuminate the room.

### PUBLIC CHAIR PROTOTYPE 2

: Furniture Challenge toward new sensitivity with Eco Material  
This chair made out of 0.5mm pitch stainless steel screen, and eco-material normally used in machinery to purify air and water. Materials created from the need to enhance technical functions, as a result, capture a new sensitivity.

### YUMESHIMA -URBAN SEA RESORT PROJECT

: Regional Planning  
Yumeshima, a man-made island in Osaka Bay, is a proposal that transforms a city area into a spiritually enriching urban sea resort. The goal is a "society that recycles nature, man-made goods, and energy" and allows us to live, work, and play symbiotically with the ocean environment.

### SOLAR TUBE

: Solar Tube (Water Heater)  
The SOLAR TUBE evolved from the solar water heater. A device designed for independent attachment to the roof with sophisticated solar water heating capacity, able to make use of almost 80% of the sunlight. This demonstrates a reduction in LCCO2 usage.

#### Researcher

NPO ECO DESIGN NETWORK ; Toshiroh IKEGAMI / Kyoto City University of Arts, Masato TANAKA / OSAKA GAS CO., LTD, Jun HASEGAWA / TAKENAKA CORPORATION, LTD, Yoshiaki KITAYA / Osaka Prefecture University Environment Control in Biology Graduate School of Agriculture and Biological Science, Chiaki MURATA / hers experimental design laboratory inc., Junichi YOSHIDA / Dotemae University, Osamu YAMADA / Osaka Sangyo University, Shuji Odo / NPO ECODESIGN NETWORK Kozo MOROOKA / DAIFUKU Co., Ltd, Masahiro YAMAMOTO / OOBAYASHI CORPORATION, LTD, Akira YOSHIDA / OOBAYASHI CORPORATION, LTD, Nobuyuki KOBAYASHI / Kyoto City University of Arts Ports of Osaka Prefecture, Masaki NAKAO / Osaka City University

#### Cooperation

JFE Holdings, Inc, SHARP Corporation, OSAKA GAS CO., LTD, Taiyo Kogyo corporation, Asahi Glass Co., National Matsushita Electric Works, Ltd, LANDES Co., LTD, Dainichi Denshi co., Ltd Date Kiyoshi, TGA CORPORATION, URBANGAUSS

Toshiroh IKEGAMI  
Fine Arts Faculty, Kyoto City University of Arts  
ikegami@kcua.ac.jp  
NPO ECODESIGN NETWORK teamAXIS4  
axis4@eco-design.net

Based on results from Japan Science and Technology Agency / RISTEX

Research Project  
Osaka Model of Circulation-Oriented Society  
through Case Study of  
Existing City & Neighborhood Nature

2003-2006

既存都市近郊自然の循環型再生大阪モデル 2003-2006

Works by NPO Eco Design Network Team AXIS4

Results from Japan Science and Technology Agency (JST) /  
RISTEX 2003-2006 -Research Institute of Science and Technology for Society

Target Area:

**Create**  
**an environmentally**  
**advanced city – Osaka**  
**as a BIOMASS society**

Target Level

**Prevention of Global Warming**  
by **reducing**  
**LCCO2 emissions by 30%**  
from **current level.**

**Strategy**

to construct a

**sustainable society**

using

**lifestyle aesthetics and**

**sensitivity**

developed through

**eco design.**

**End Result:**

**Realize An Asian Model**

of

**a circulation-oriented society**

with

**universal applications.**

# Plan of Action

## BUILD

**a flat-type industrial structure**  
(from primary to tertiary industry aspects)

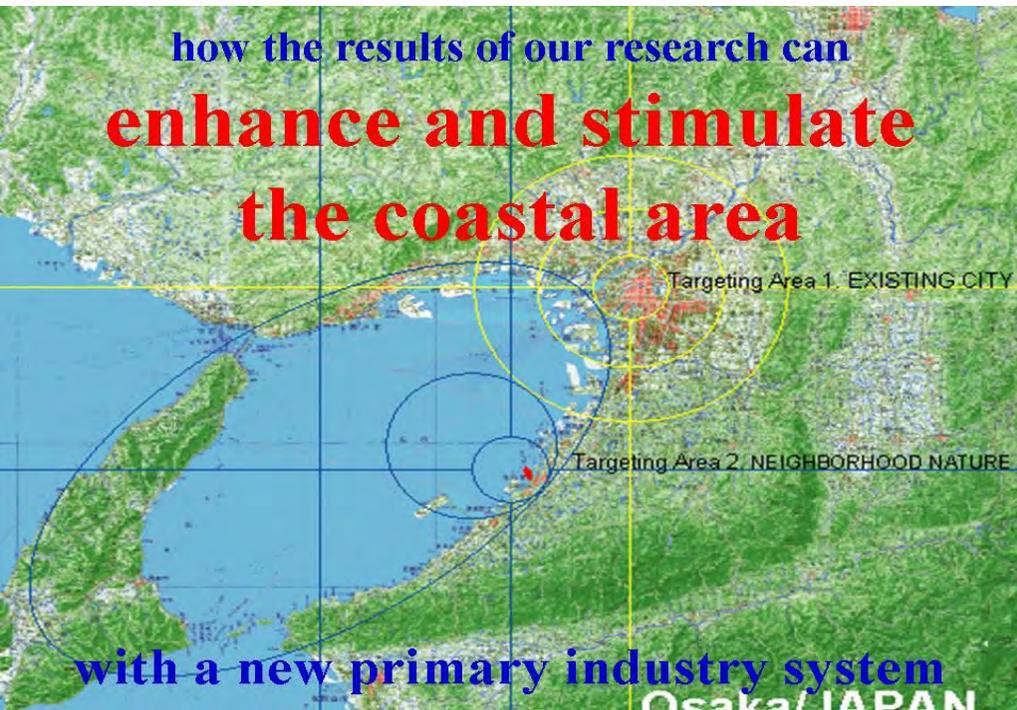
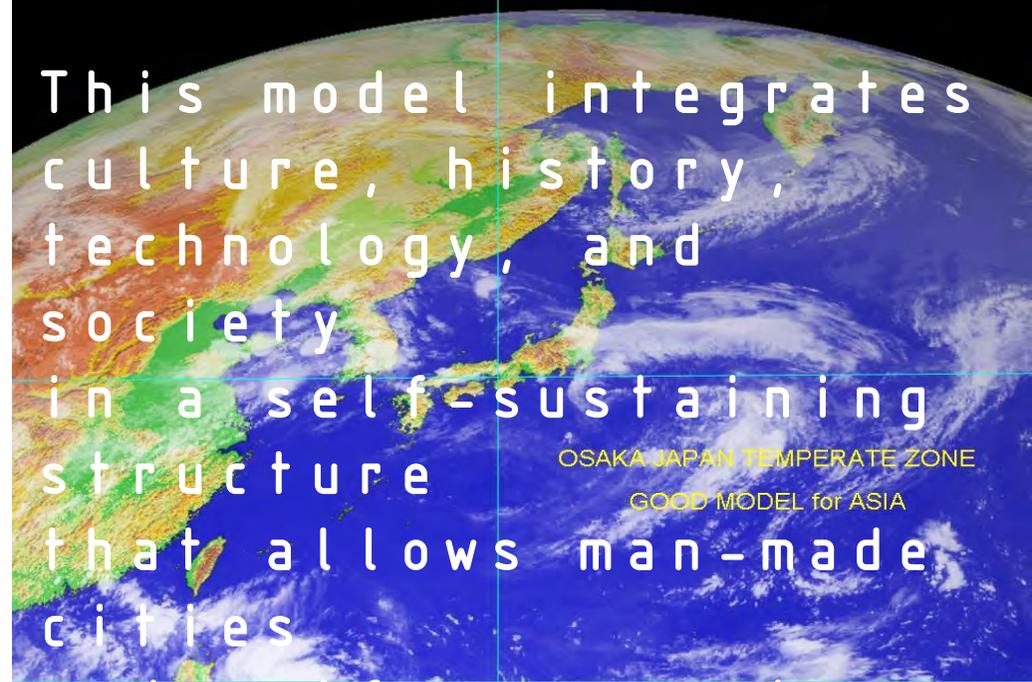
## MIGRATE

from

**over-use of technology**

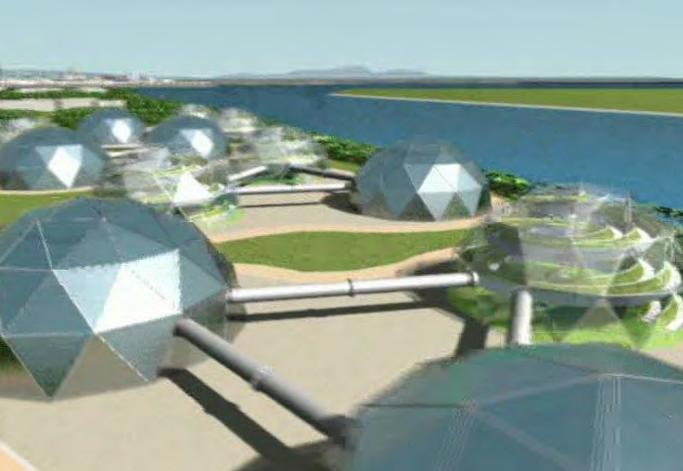
to

**application of natural life forms**



We are currently working on a joint research project

**targeting**  
**the densely populated**  
**downtown area of Osaka**  
and  
**unused land**  
**in the Osaka Bay coastal area**  
under  
**the concept of creating**  
**a BIOMASS society.**



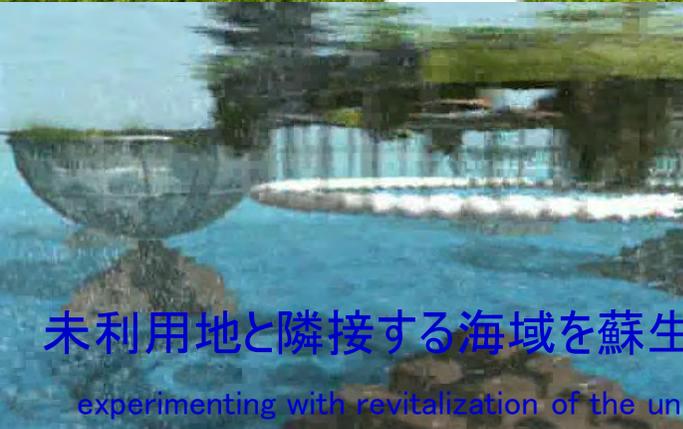
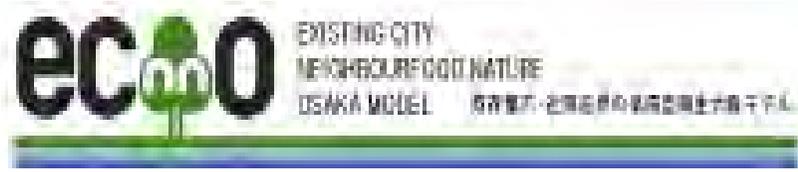
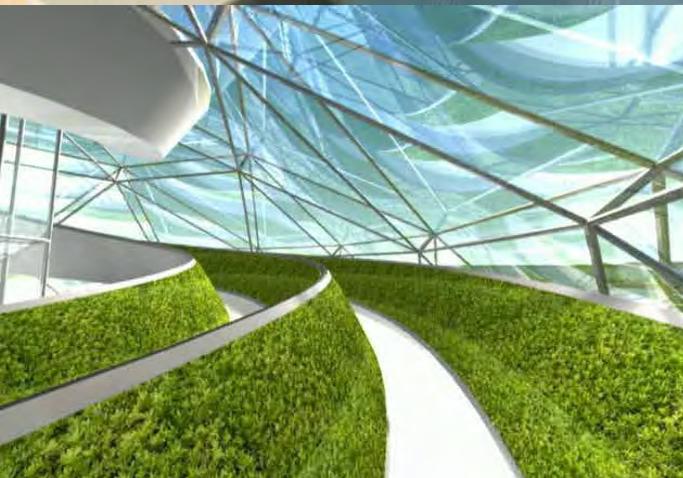
2階建て×2両連結 燃料電池エコロジーバス  
**2×2 FUEL CELL ECOBUS**  
**Naniwa Suzy**

国際集客都市OSAKAのシンボルトランスポーター  
 観光ビジターの視点を意識した2×2デザインソリューション  
 ユビキタス・オンデマンド・システムによる誰もが使える交通システムを  
 そして、地下鉄よりもはるかに低い環境負荷を目指して



いつでもどこでもなんでもエコデザイン

# Ubiquitous Eco Design



未利用地と隣接する海域を蘇生する試み

experimenting with revitalization of the unused areas

and the neighboring Bay waters

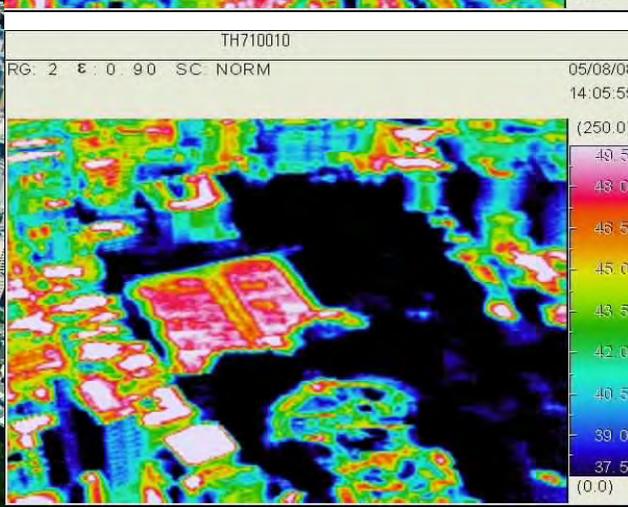
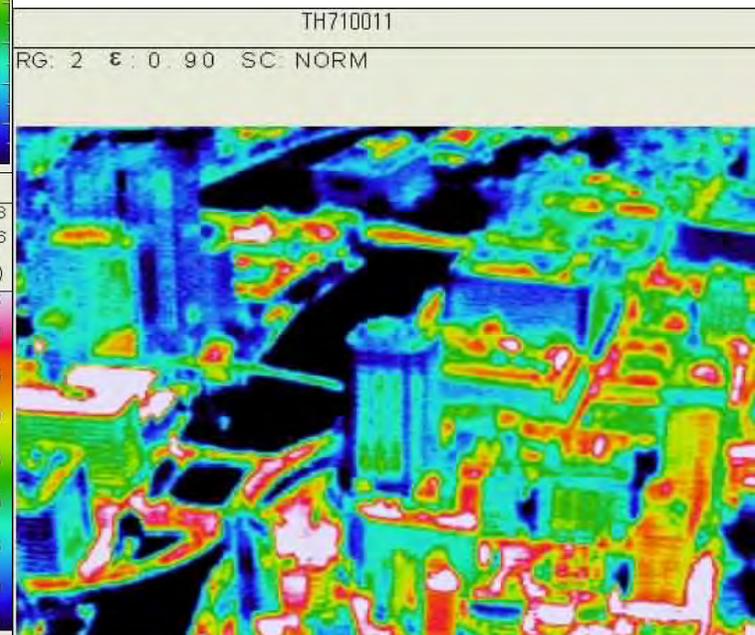
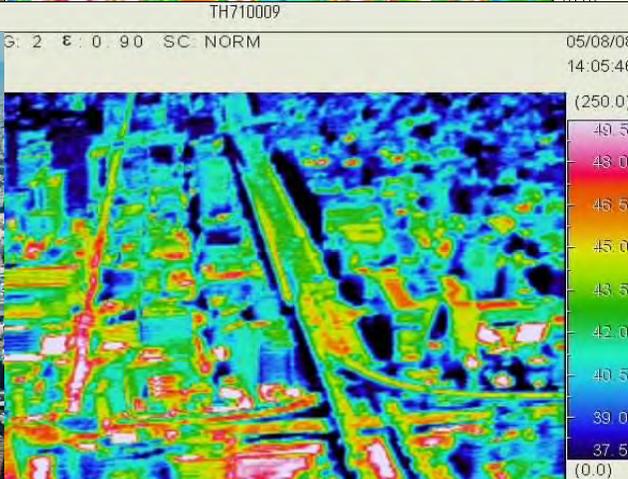
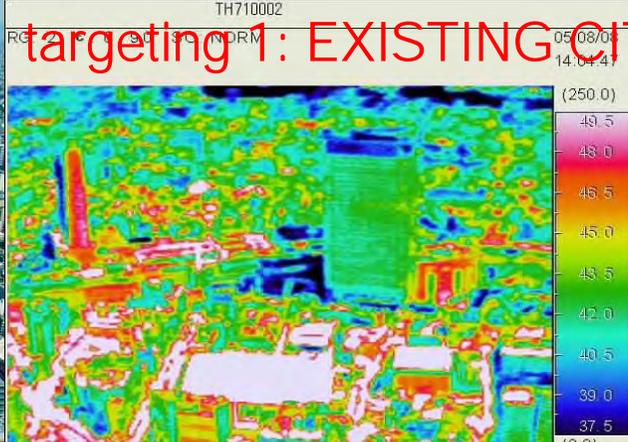


## MARINE PLANTATION SYSTEMS

マリンプランテーションシステム

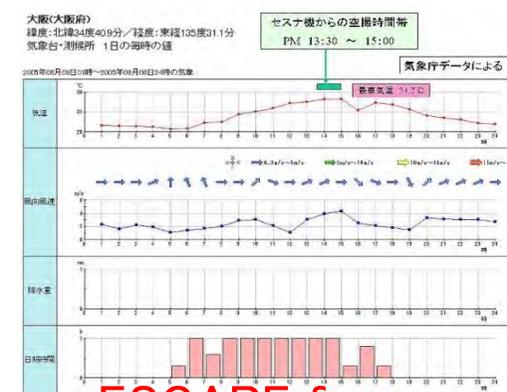
# targeting 1: EXISTING CITY CENTER OF OSAKA

THERMO CAMERA  
20050808





- 中之島
  - 浮島による河川浄化
  - 護岸緑化
  - マイナスイオン
  - 流水発電
  - 雨水還元
  - 風車発電
- COOL LINE
  - 御堂筋
  - アクアストリーム
- COOL ISLAND2
  - うつぼ公園
- COOL NETWORK
  - 道路+公園
  - +ポケットパーク
  - +駐車場
  - +屋上・壁面緑化



# ESCAPE from HEAT ISLAND

Osaka city centre, environmental thermal eased effects assessment : by the application of thermal simulation technology for HEAT ISLAND.

- 1:Midou-suji/ City center subject analysis results : by the capacity of pavement retained water, shade effect by the roadside tree, the average is about 2 °C, some place up to 8 to 10 °C temperature drop confirmed.
- 2: Nakanoshima/ between two river subject analysis results: Comparison between redevelopment model and present model measures heat island mitigation. 5 °C average temperature drop, some place 10 °C above can be reduced.

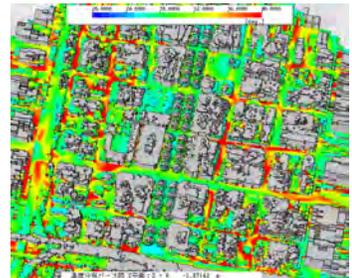
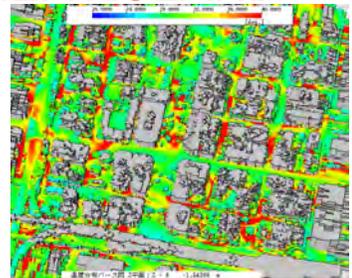
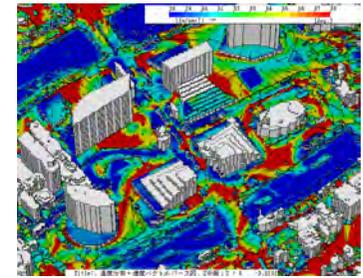
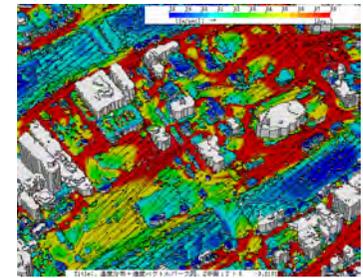
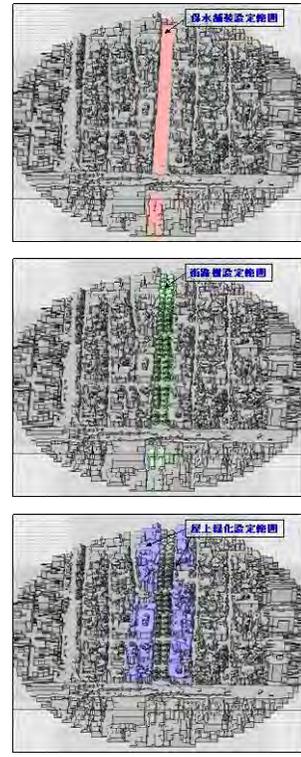
Measures to promote the Heat Island approach by analysis results

it is important to consider the proposed measures after recognize Characteristics of the target area (prevailing wind, the direction of the street, the current land use, etc.)

- A. Midou-suji/ City center
- B. Nakanoshima/ between two river

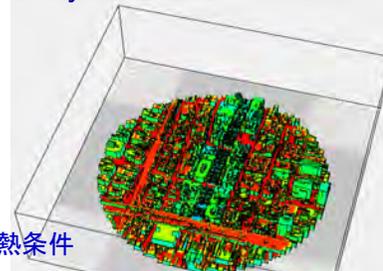
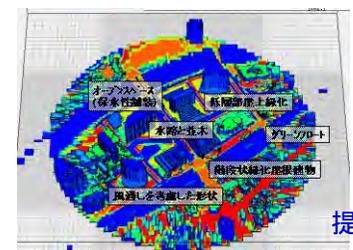
## Three-dimensional fluid analysis

- Pavement Retained Water
- Big Tree /Green Roof



2: Nakanoshima/ between two river analysis results:

1:Midou-suji/City center analysis results



# COOL HABIT GREEN WORK



COOL SPOT  
COOL TUBE  
COOL CORRIDOR

大阪GREENBELT

# COOL HABIT GREEN WORK



**CSR**  
**CORPORATED SOCIAL RESPONSIBILITY**  
**COMMUNITY SOCIAL RESPONSIBILITY**  
**CITIZEN SOCIAL RESPONSIBILITY**  
**CHILDREN SOCIAL RESPONSIBAILITYA**  
**CeDM CLEAN ECODESIGN MECHANISM**

# SEASIDEFARM SEAFARM 2005 summer



SEAFARM 2005

SEAFARM 2006

SEASIDEFARM

# SEASIDE FARM



## OUTLINE

**Dimensions: Φ6m, H = 5m ellipsoidal floating device, steel frame.** Dome height: sits 1.7m above ground, omni-directional daylight reception, effective use of solar energy. Dome Outer Membrane: ETFE film (penetration efficiency exceeding 90%, diffusion type, 100% recycled materials)

Power: Solar energy + small gas water heater + commercial energy Air conditioning: spot cooler + heat pipe Ventilation: thermo ventilation fan

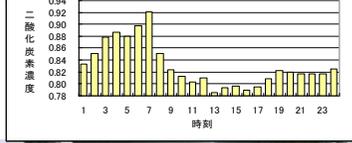
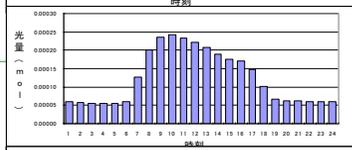
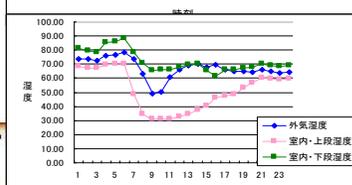
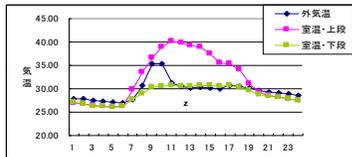
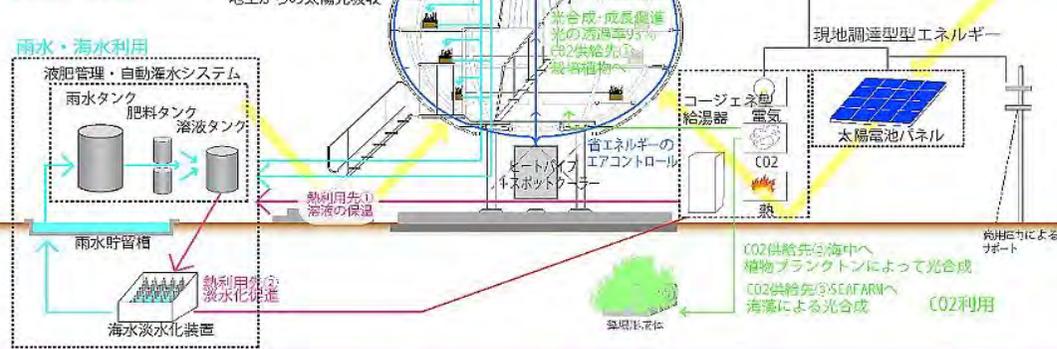
Water usage/supply: rain water + desalinated seawater (partial) CO2 for vegetation: small gas water heater

Agricultural equipment: 4 shelves for edible vegetation, Cultivation method: liquid soil supplied to plants through drip

Increase amount of sunlight reception, promote photosynthesis, stabilize and recirculate CO2/O2  
Low-energy production of BIO ENERGY crops (sweet potato, etc.)

**GOALS**  
Discover industrial expansion possibilities of factory-style agriculture on unused land of Osaka Bay coastal area.  
Investigate the application possibilities of bio technology in primary industries  
Explore industrial development in areas lacking energy supply through operations using locally procured energy

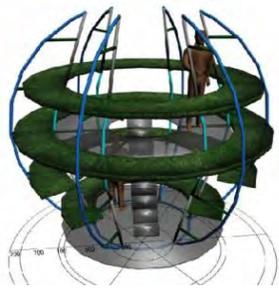
## Landless Factory-type Vegetation Agriculture Equipment, Efficient Omni-directional Solar Energy, Hybrid Energy

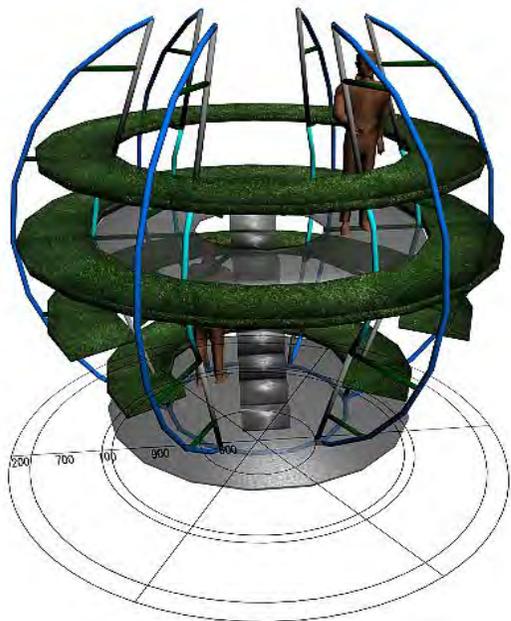


## 太陽光 受光量の拡大 光合成の推進 CO2 \* O2の循環

SEASIDE FARM success rate for projected installation area  
Shelf agriculture success rate = 1.75 Spherical surface acre = 3.50  
2005/10/29 Harvest: total weight incl. leaves and stems = 110 kg  
Effect of CO2 Supply: 1.3 – 4.0 increase

20050819

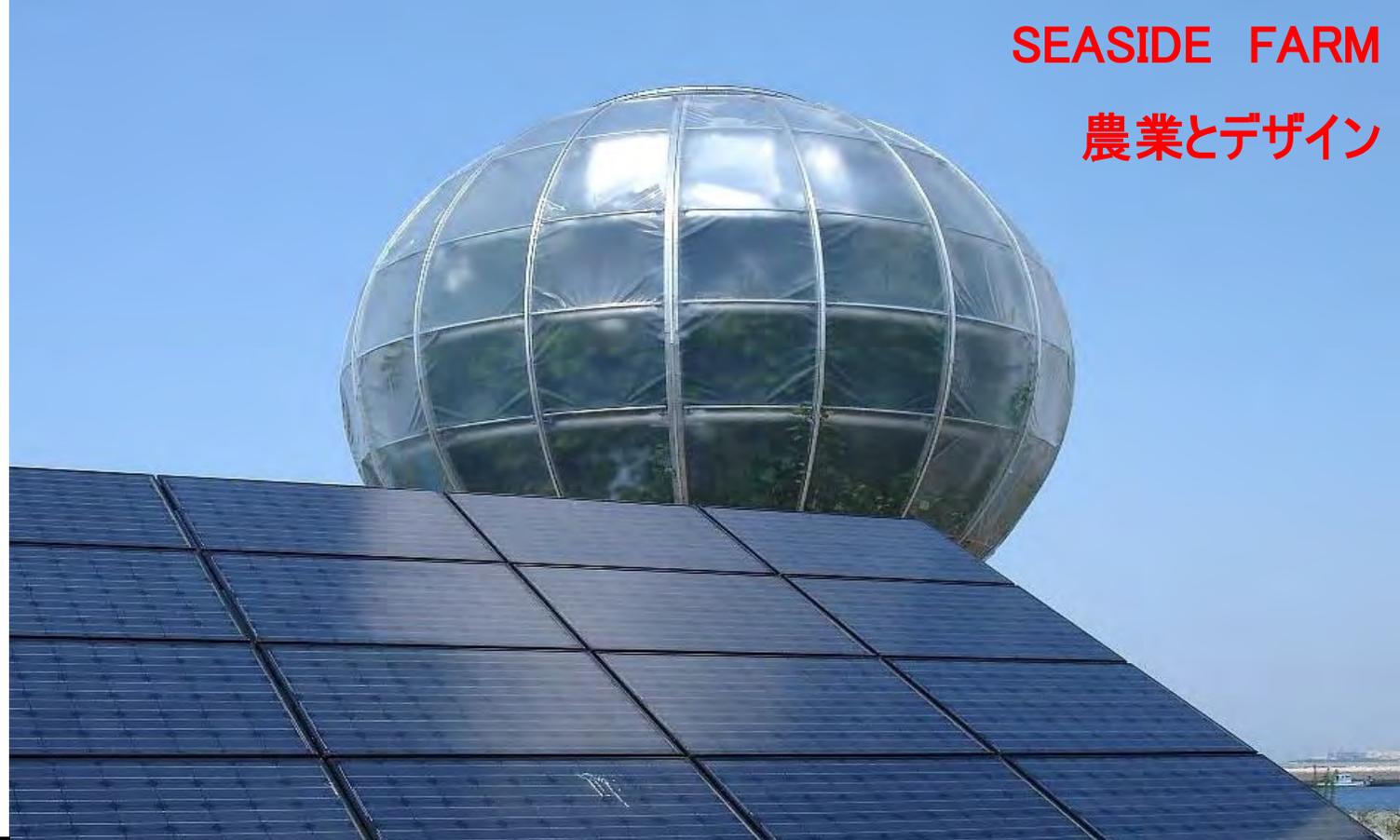




**SEASIDE FARM**  
**2005-2007**

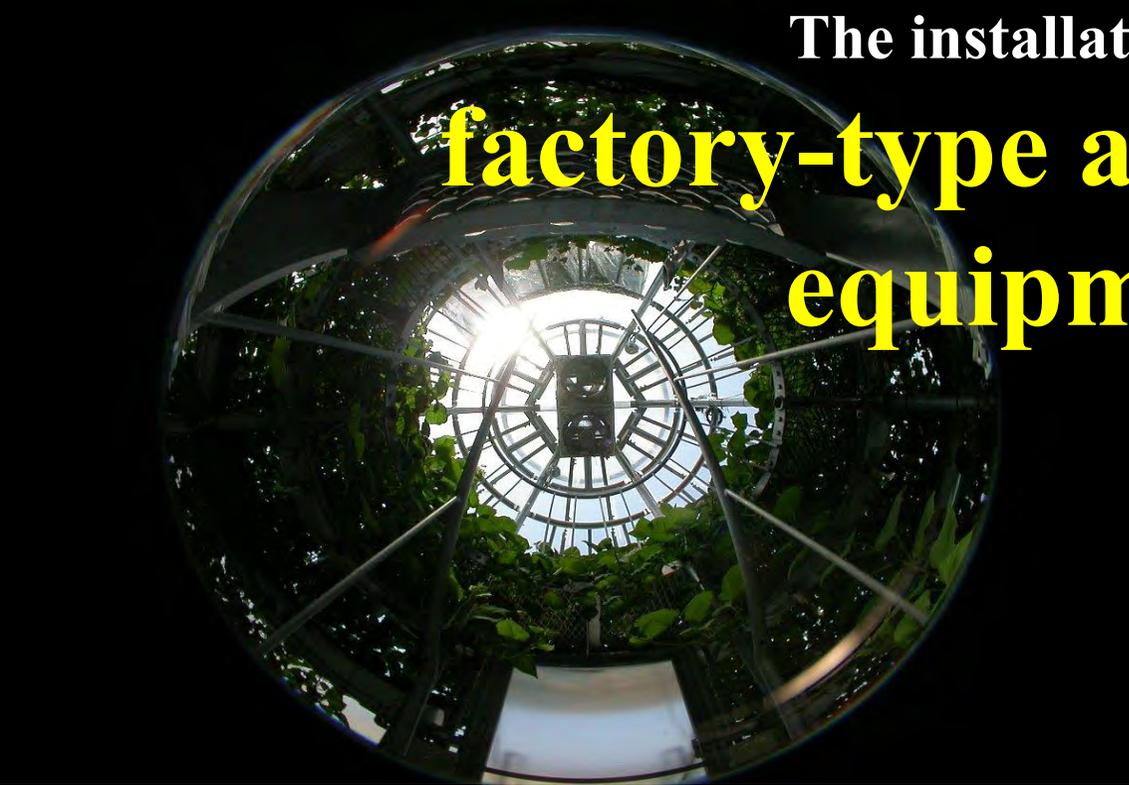
**SEASIDE FARM**

**農業とデザイン**



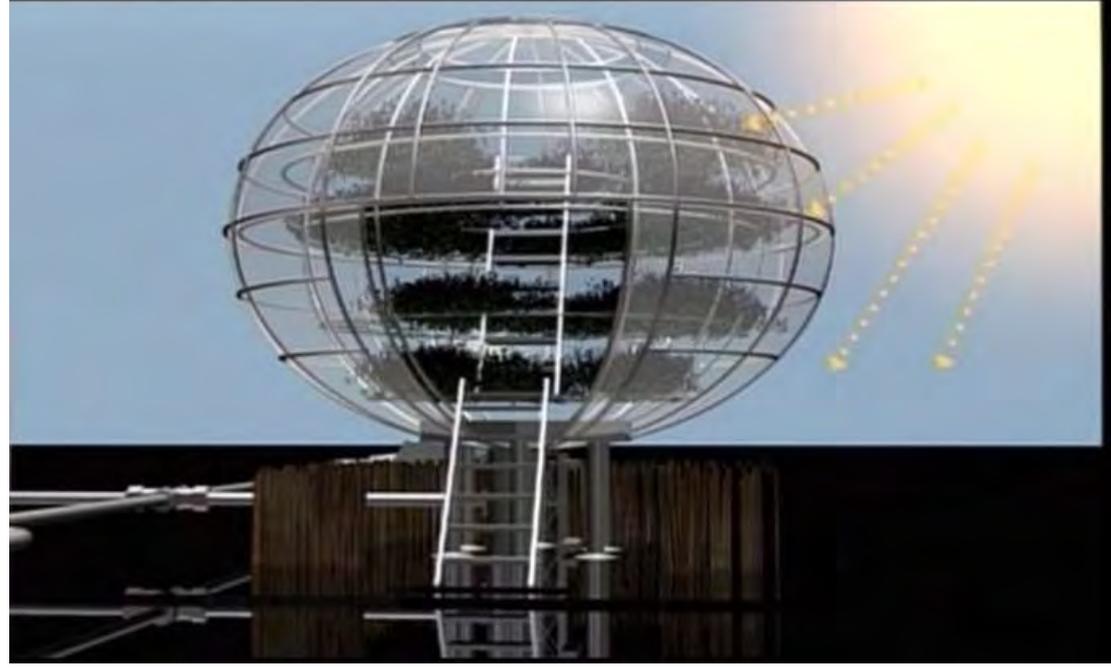
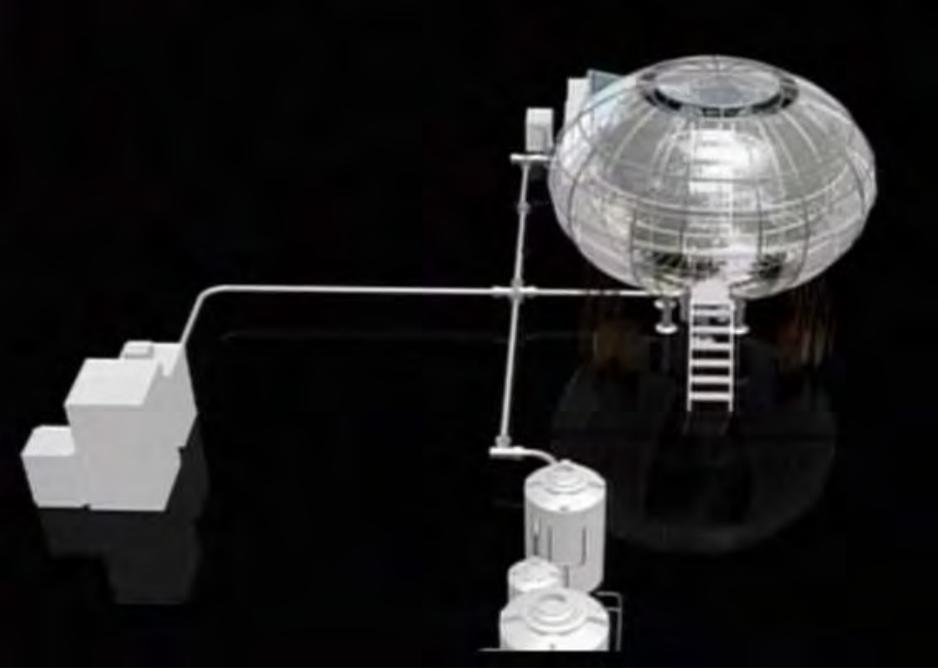
The installation of

# factory-type agriculture equipment

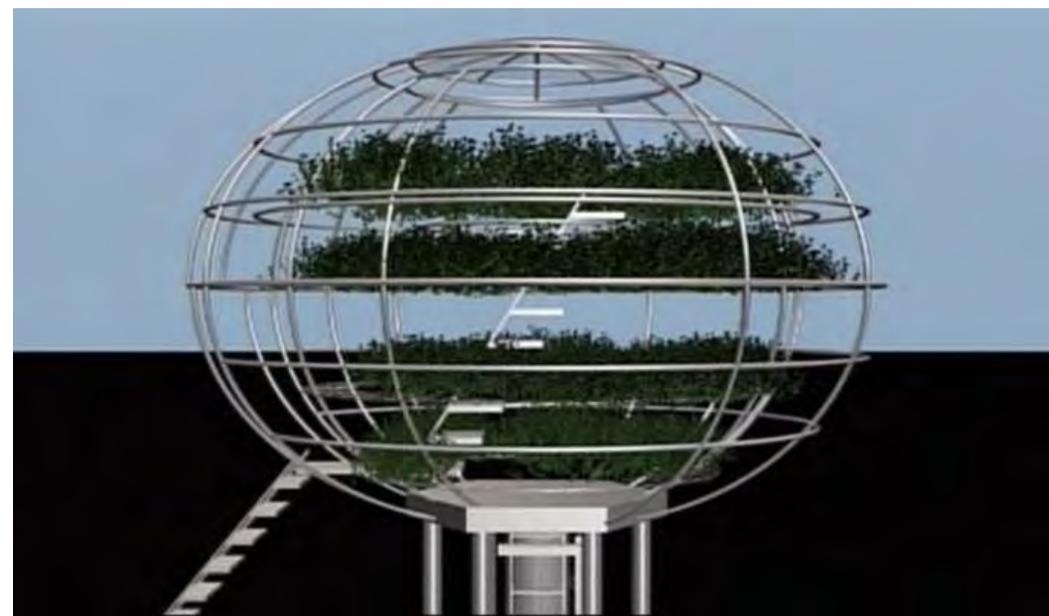


on bay area land  
SEASIDE FARM 2005





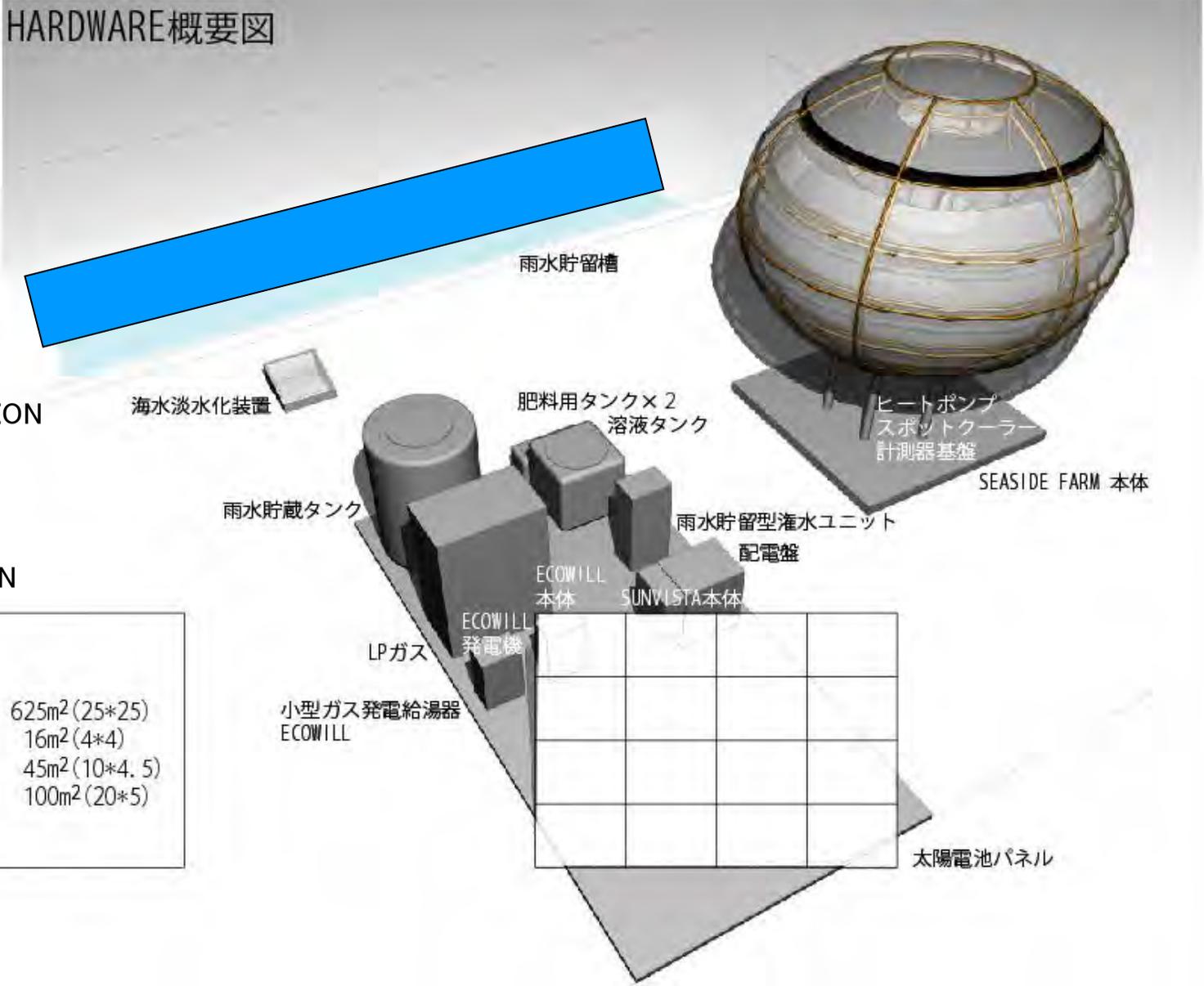
SEASIDE FARM SYSTEM 太陽·雨水·AIR CONDITIONING·養液·CO2



SEASIDE FARM HARDWARE概要図

PHOTOVOLTIAC GENERATION  
 TRIGENERATION  
 SPOT COOLER HEAT PIPE  
 RAIN WATER DESALINATION

SEASIDE FARM	
敷地面積	625m <sup>2</sup> (25*25)
本体基礎面積	16m <sup>2</sup> (4*4)
設備基礎面積	45m <sup>2</sup> (10*4.5)
雨水貯留槽	100m <sup>2</sup> (20*5)



SEASIDE FARM NEXT  
 ORGANIC PHOTOVOLTIAC GENERATION BATTERY GEOTHERMAL RAIN WATER



MONGOLIA  
MOUNTAIN RIVER  
SIDE STEPPE



STEPPE

ANIMAL  
EXCREMENT



# **CULTURE FARM 2007**

# SEAFARM

## GOALS

Use the power of life forms themselves to revitalize the rich nature of Osaka Bay and recover marine life. Utilize the current fisheries, etc. in Osaka Bay as momentum to turn the bay into major center of marine industry. Realize the Grand Design of turning the Osaka region into an URBAN SEA RESORT. Facilitate habitation of various living organisms in tidal flats, shallow areas, fishing grounds, and seaweed beds. Use the food chain to stabilize carbons (reduce global-warming factors such as gas emissions). Use recycled materials with high adhesive features to enhance incrustation of living organisms (ph8.5, carbon stabilization due to re-generation). Sanitize marine area through living organisms and plants.

## OUTLINE

**Dimensions (upper section):**  $\Phi 3m$ ,  $H = 1.7m$

conical body

Materials: solid steel structure of hydration slag. Place granulated blast furnace slag encasing material and steel slag clusters → create tidal lands and shallow water areas

Seaweed Bed Structure (substratum):  $W 1m \times D 1m \times H 0.5m$

Materials: Steel slag of carbonated solid

The combination of the three recycled materials - steel hydration slag structure, granulated blast furnace slag encasing, and steel slag of carbonated solid - is aimed at promoting marine life attachment and recovery and the revitalization of marine nature. At the same time, CO2 emissions during production of structural materials is reduced, and CO2 levels are stabilized through generation of seaweed beds.

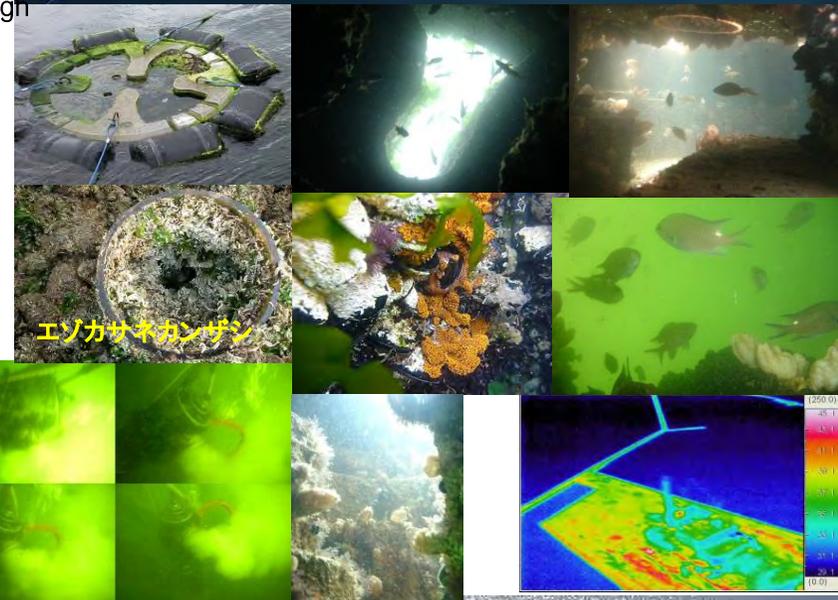


SEA FARM Marine Life Recovery Equipment

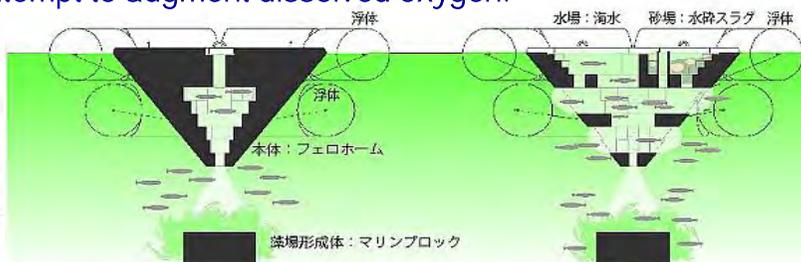
Rapid organism habitat development through eco-material predisposed to living organism incrustation.

Stabilize CO2 emissions through algae breeding, etc.

Attempt to augment dissolved oxygen.



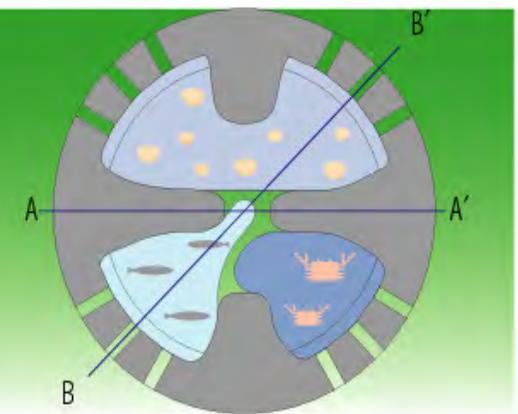
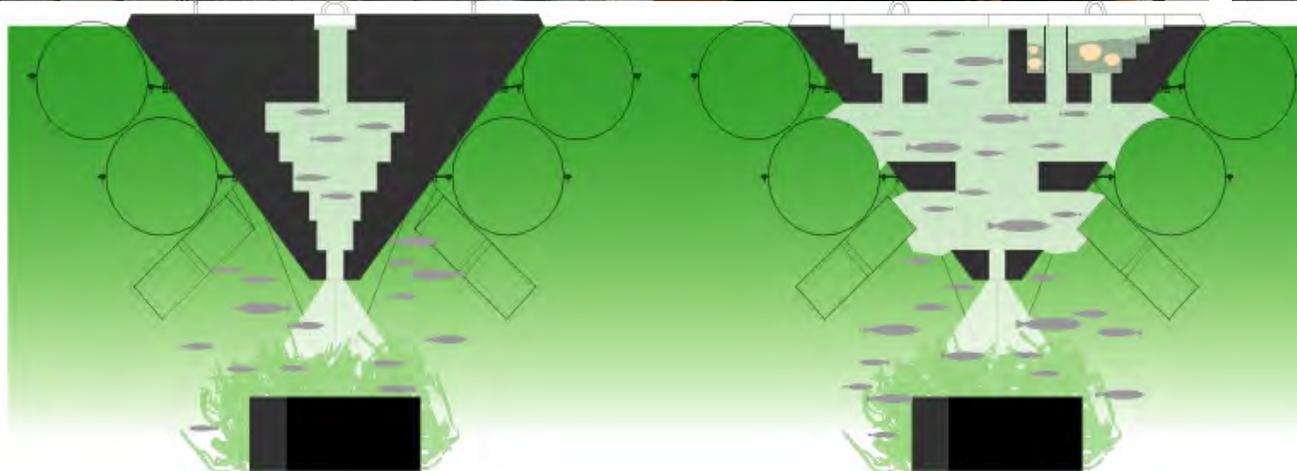
エゾガサネカンザシ



SEAFARM 2005-2007 OSAKA



SEAFARM  
本体部  
200503



水場：海水      干潟 2：製鋼スラグ



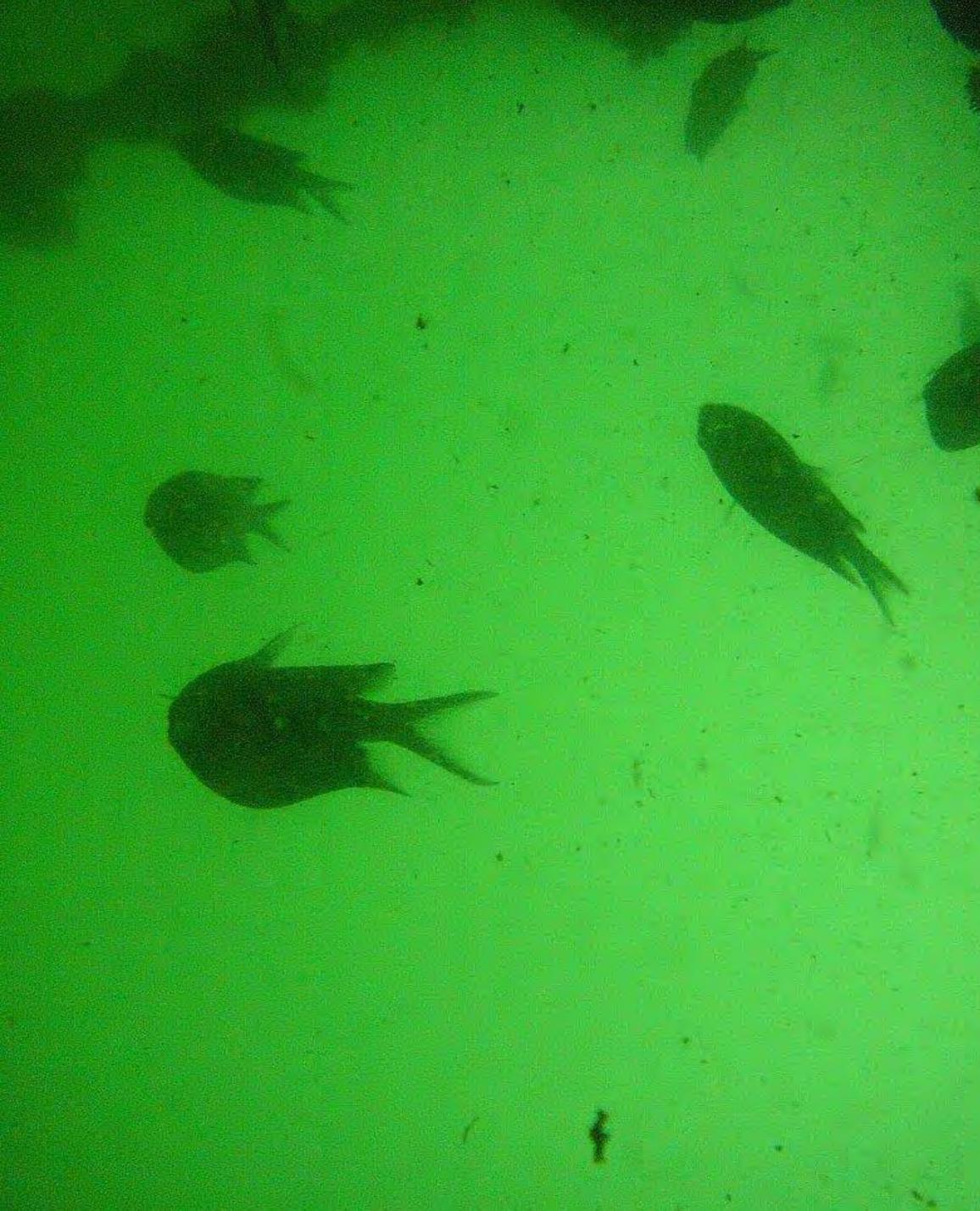
SEA FARM 2005

200704-05



200705-07

SEAFARM



**20070811 SEAFARM**



新宿

皇居

東京駅周辺

Tokyo

新橋

六本木

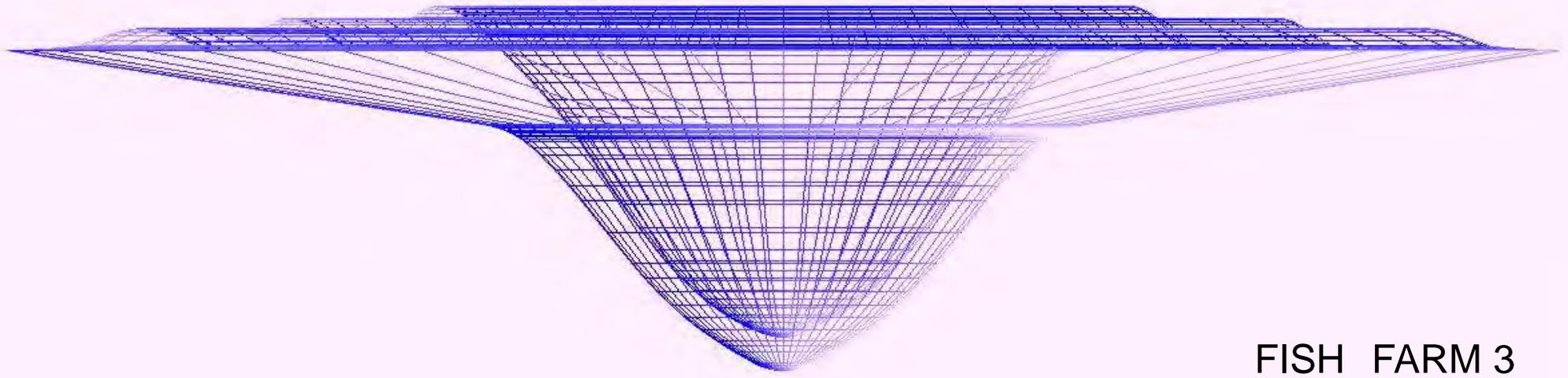
渋谷

品川

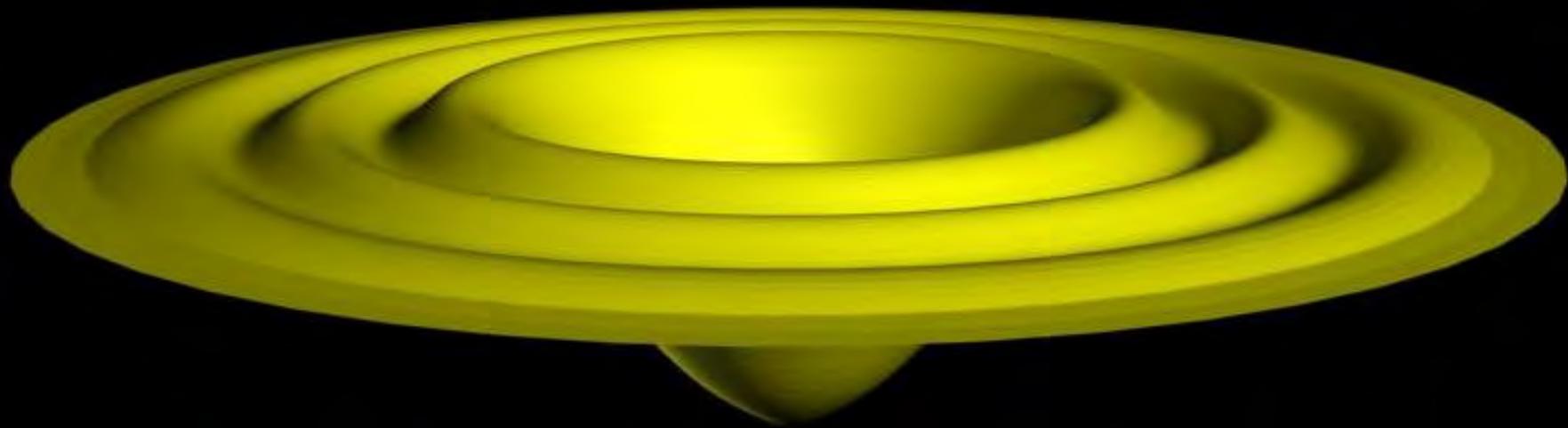
FISH FARM project

# TOKYO FISH LOVE PROJECT 2008

構想: 生物回帰促進装置 (FISHFARM) を 東京湾に設置する。

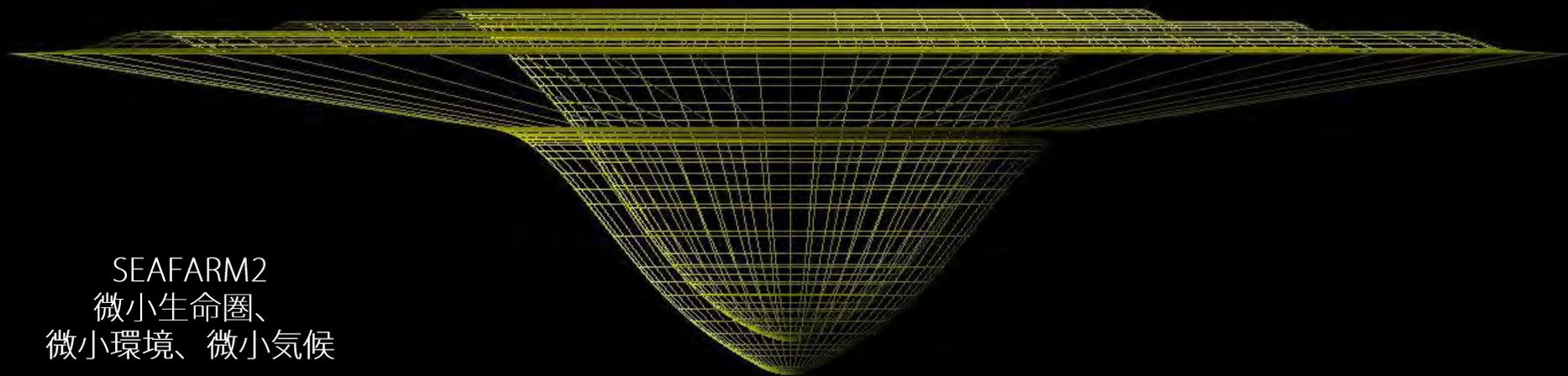


FISH FARM 3



DESIGN as FACTOR TECHNOLOGY 4

海洋生物回帰装置 食物連鎖の場としての生物多様性



SEAFARM2  
微小生命圏、  
微小環境、微小気候

TOKYO FISH LOVE PROJECT SEAFARM 2 / LIFE FORMS + PURIFY SEA WATER

20080614

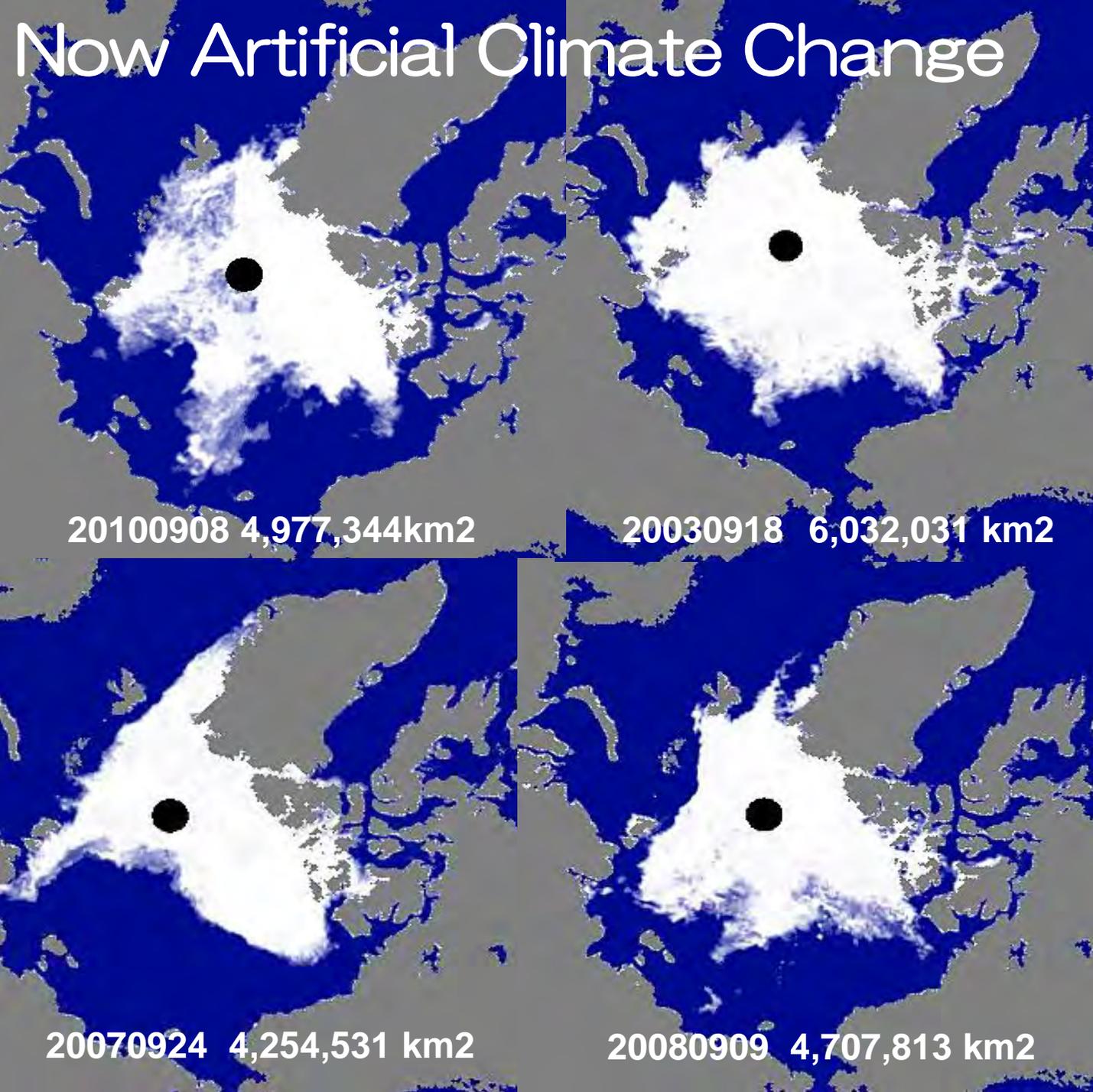
海洋生物回帰装置  
食物連鎖の場としての生物多様性



# KEYWORDS

for Creating Sustainable Society

# Now Artificial Climate Change



## Arctic Report

## Arctic Ocean

## Sea-ice Conditions

2002 — 2008

20020908 5149688 km<sup>2</sup>

20030918 6032031 km<sup>2</sup>

20050922 5315156 km<sup>2</sup>

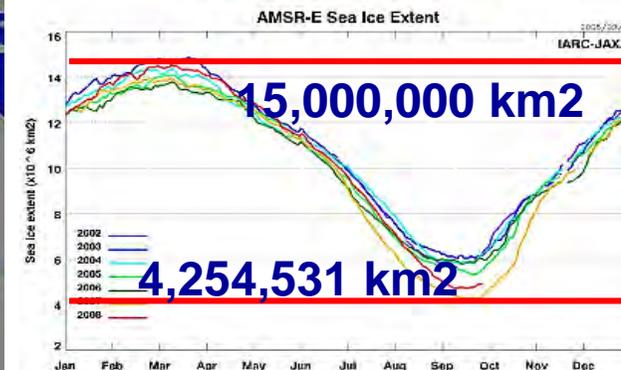
20060920 5846875 km<sup>2</sup>

20070924 4254531 km<sup>2</sup>

20080909 4707813 km<sup>2</sup>

20100908 4977344 km<sup>2</sup>

最新海水面積: 4,845,010 km<sup>2</sup> (2008年9月16日時点)



KEYWORD 1

宇宙

SECTION from SPACE into DEEP SEA:

KEYWORD 2

SPACE

地球の自浄化とともに

宇宙からの地球監視

国境を超える課題・国レベルの課題である温暖化ガス排出削減に

地球温暖化防止

オゾン層保護

身近な領域で可能なことからアイデアで取り組む

MOUNTAIN

山岳

環境共生産業

クリーンエネルギー

PLANE

平野

環境共生都市

AIR

大気圏

環境共生建築  
省エネルギー、自然環境との調和、  
都市計画、中央空調、  
上下水道

自然生態系の回復  
森林整備、緑地  
生物多様性、温暖化防止、  
河川・湖沼の浄化

WATER

水中

土中利用

海洋CO2固定

RIVER

河川

エネルギー

LAKE

湖

素材

グリーン購入

ゼロエミッション

SEA

海

環境共生

海洋汚染浄化

“Micro Climate in a Micro Biosphere”

QUALITY OF LIFE

GREEN ENGINEERING

GREEN ARCHITECTURE

GREEN LIFE

GREEN PRODUCT

# spiral life-cycle thinking

## DUAL LCA=LIFE CYCLE ASSESSMENT

螺旋状ライフサイクル  
思考

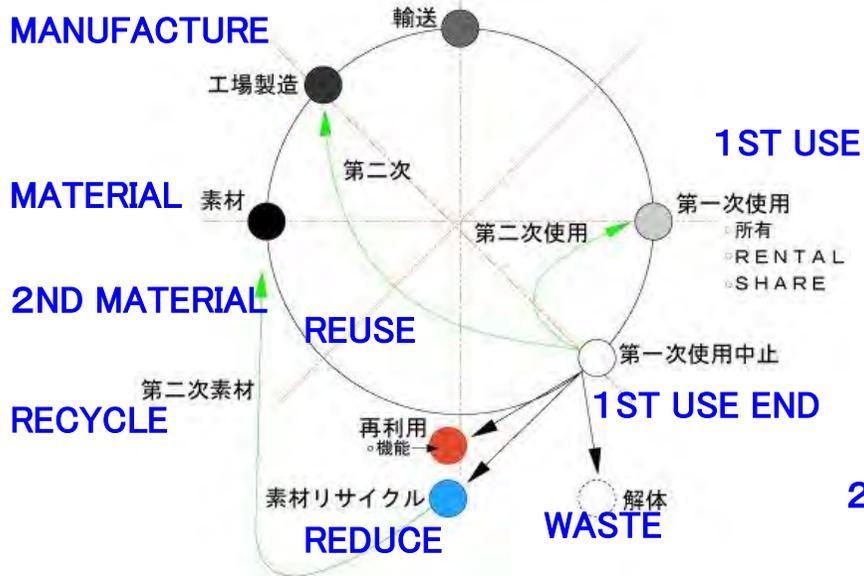
PRODUCT DESIGN

SPACE DESIGN

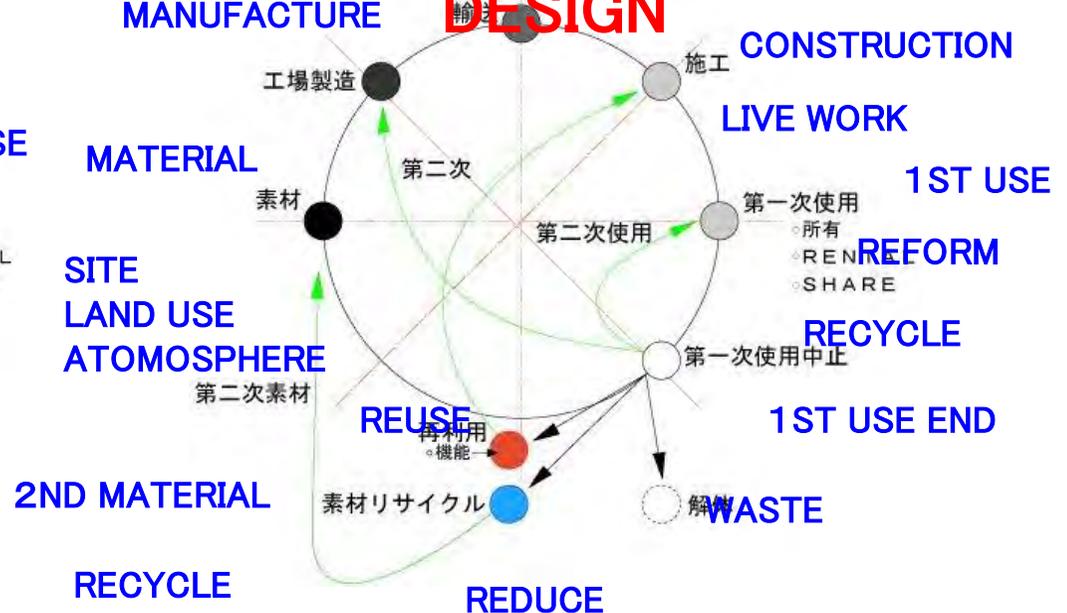
商品・機器製作におけるライフサイクルアセスメント

構築物製作におけるライフサイクルアセスメント——建築・都市・地域

### CLOSED ENVIRONMENTAL SYSTEM



### OPEN ENVIRONMENTAL SYSTEM



# CSR

**CORPORATED SOCIAL RESPONSIBILITY**

企業の社会的責任

**COMMUNITY SOCIAL RESPONSIBILITY**

地域の社会的責任

**CITIZEN SOCIAL RESPONSIBILITY**

個人の社会的責任

**CHILDREN SOCIAL RESPONSIBILITY**

子供の社会的責任

# ECODESIGN

生活美学

LIVING AESTHETICS

社会美学

SOCIAL AESTHETICS

环境美学

ENVIRONMENTAL AESTHETICS

COOLHABIT GREENWORK

# CREATING ASIA MODEL of ECODESIGN from EACH COUNTRY, EACH REGION, EACH CITIES

visiting 10 COUNTRIES 18 CITIES 2003-6

transportation



landscape design



green + artificial work



design



city



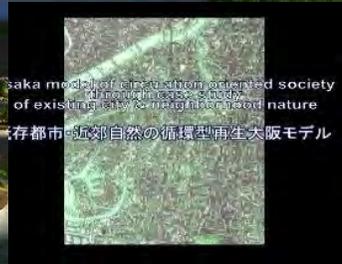
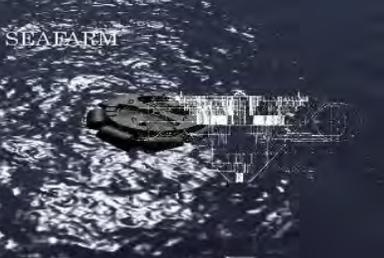
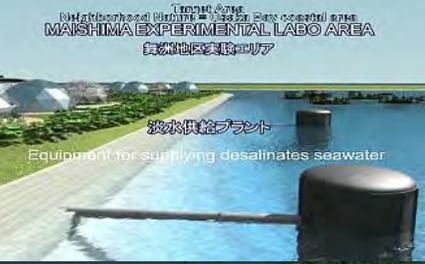
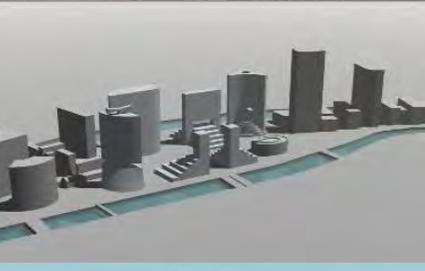
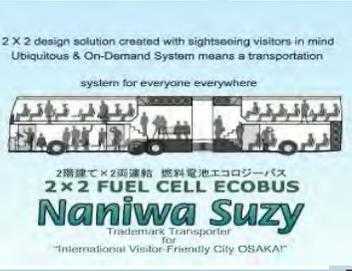
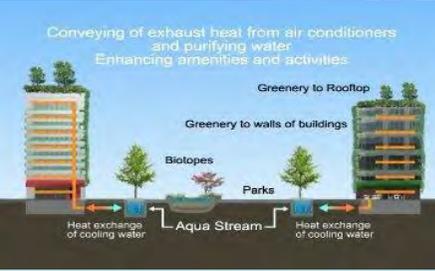
dwell

work

for Carrying out the Role of Asia for Global Climate Change Starting from Different Settings  
-Nature, Culture-Urbanization-Industry, Waste, Transportation, Water-Land-Agriculture, Forestry, Fishery  
Creating a Circulation-oriented Society through Lifestyle Aesthetics of Eco-Design

既存都市・近郊自然の循環型再生大阪モデル  
Osaka model of Circulation-oriented Revitalization  
for existing cities & neighborhood nature

HEAT ISLAND-OSAKA



NATURE BY A SOLAR SYSTEM  
MAN MADE SOCIETY

# TOWARDS SUSTAINABLE SOCIETY

## 7 MANAGERMENTS

9 DIRECTIONS

1 NATURE

2 FOODS

3 ENERGY

4 ECO MATERIAL

5 ECO CITY

6 EDUCATION

7 SCIENCE

8 ART

9 ECONOMY

7 NEW TECHNOLOGY

7 新技術

1 FOODS

1 食糧

2 ENERGY

2 ENERGY

6 BIO DIVERSITY

6 生物多樣性

3 水

5 WASTE MANAGEMENT

5 廢棄物

4 交通

3 WATER

1 CITIZEN

1 市民

4 TRANSPORTATION

8 FINANCE CONTROL

8 財政管理

2 CULTURE

2 文化

7 情報管理

3 福祉

## 8 IDEALS

7 INFORMATION CONTROL

6 危機管理

4 地域環境

3 UNIVERSAL

6 CRISIS CONTROL

5 地球環境

4 REGIONAL ENVIRONMENT

INFRASTRUCTURE

MOBILITY

ENERGY

WATER

EDUCATION

CULTURE

HISTORY

# TRANSFER PEOPLE'S ACTIVITY

create next living scene with peace of mind

ECOLOGY ,NEW INDUSTRY ,NEW CULTURE,  
NEW SHOPPING ,NEW SIGHT SEEING,  
NEW BUSINESS

with  
GOOD INFORMATION,  
CIRCULATION CONCEPT,  
GLOCAL LIFE STYLE

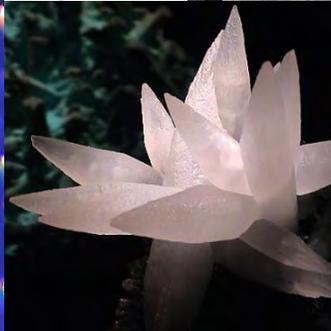


NATURE

ART

DESIGN

SCIENCE



1 People Ideal

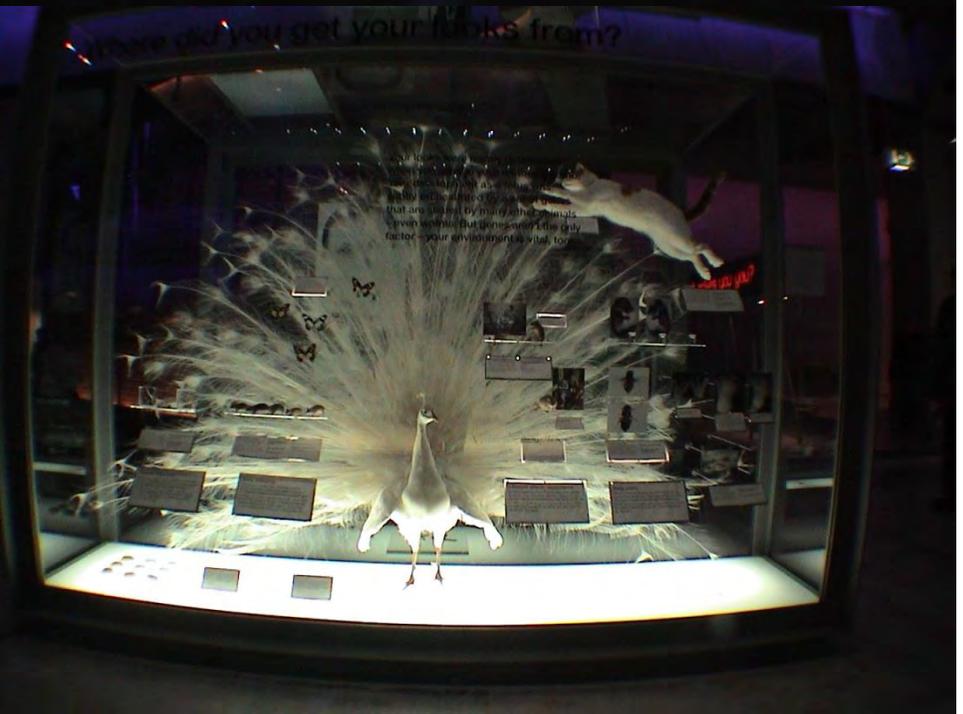
# 2 Culture Ideal

Activate Various Media



3	in future
2	digitopolis
1	who am I?
G	antenna pattern pod virtual voyages imax deep blue café
B	launch pad

deep blue cafe 2002 LONDON





**3 Universal Ideal**  
HEALTH & WELFARE





Creates Clean Pedestrian City

4 Regional Environment Ideal





# 5 Global Environment Ideal



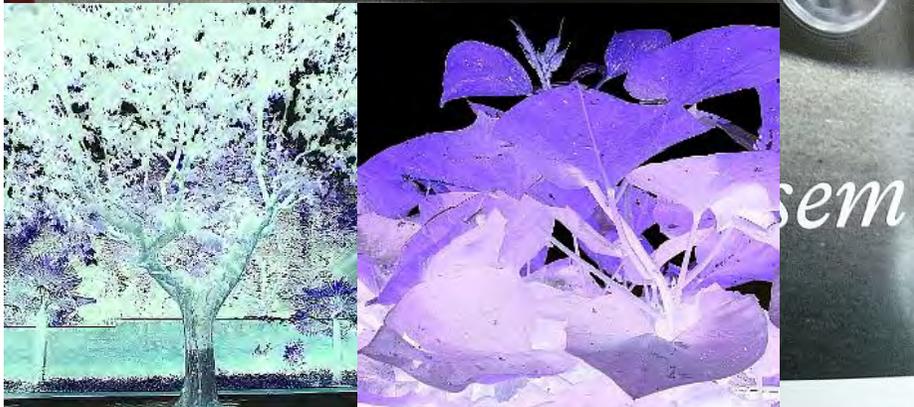
PHOTOSYNTHESIS FIX CO<sub>2</sub> & SUPPLY OXGEN

DESIGNING BIOMASS MATERIALS

AGE of LANDSCAPE DESIGN for SUSTAINABLE REGION & PLANET



GREEN & WATER SHARING



Consumi (litri/100 km) ciclo combinato: 6,0 (1,9 JTDm 120 CV) - 11,6 (3,2 JTS Q4 260 CV). Emissioni CO<sub>2</sub> (g/km): 159 (1,9 JTDm 120 CV)

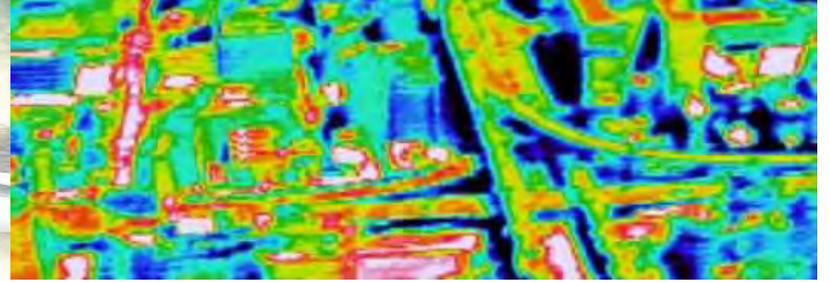


表1. 4-9 単木の年間総CO<sub>2</sub>吸収量 (総光合成量、U<sub>CO2</sub>) 概算表  
単位: kgCO<sub>2</sub>/yr

幹径(cm)	樹高(m)	落葉広葉樹高木	常緑広葉樹高木	中・低木
2cm	2~ 2	18	11	2
3	2~ 2	32	21	5
4	3~ 3	53	35	11
5	3~ 3	70	53	14
10	4~ 5	250	180	53
15	6~ 7	530	320	140
20	8~10	700	530	-
25	10~13	1100	700	-
30	12~16	1400	1100	-
40	16~21	2500	1800	-
50	20~25	3500	2500	-

高木はDBH (胸高直径)、中・低木はDO (根元直径) を用いる。  
樹高は、(強度の測定を受けているもの) ~ (測定の軽微なもの) を示す。

275 (3.2 JTS Q4 260 CV)

## Climate Change

**CAR EMISSION CO2 150-300gr co2/km &**

**ABSORPTION CO2 by TREES or SWEET POTATOES**

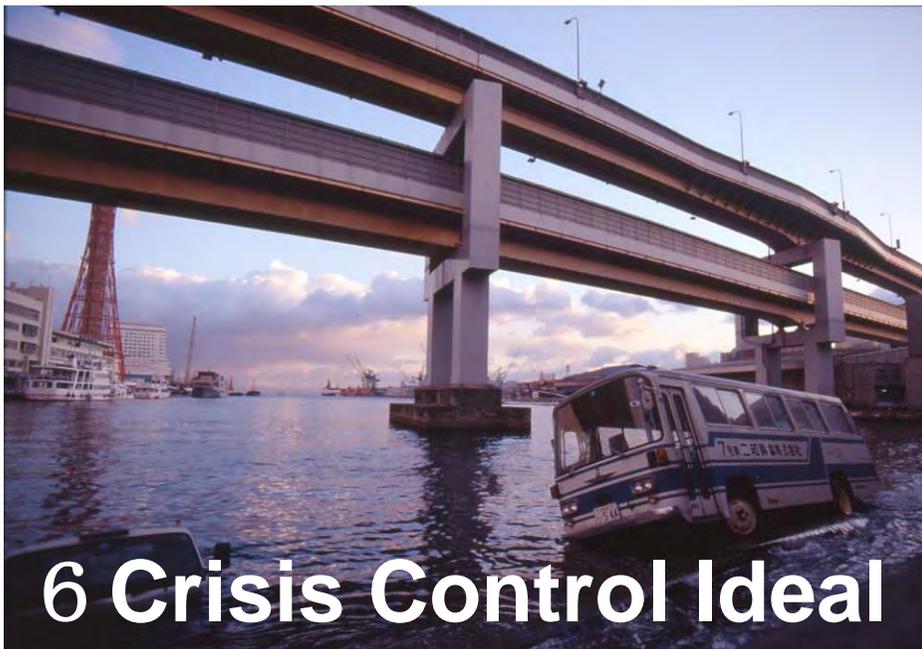
TREES CO2 FIXING 45.5kgCO<sub>2</sub>/yr tree 10H CAR exhaust CO2 150gr co2/km TREE=CO2absorption+TEMP 1 CAR= 10,000km/yr  
=1.5tCO<sub>2</sub>/yr=33TREES. 675,000 CARS=1,000,000 tCO<sub>2</sub>/yr. 8,000TREES/30km ROAD @7.5m\*2ways (from center of OSAKA to foot of mountain =30km) 2,800 ROADS of 30km. (data base 7<sup>th</sup> OSAKA PREF.TRAFFIC PLAN)

**5 Global Environment Ideal 2**

275 (3.2 JTS Q4 260 CV)



from EARTHQUAKE KOBE 19950117 0547



# 7 ; Information Control Ideal

INTELLIGENT ICT :

ICT = INFORMATION COMMUNICATION TECHNOLOGY

Integrate social management through computer network.

Save Energy more than 20%..

1 ; STRATEGY : Thinking about city activity for next age.

Consider the future of the city and perform optimization by the function differentiation, and the drafting of a feasible measure carries it out concretely. Strategy consulting, building a framework of collaboration with government and business, to allow visualization of the measures.

2 ; TRANSPORT/ MOBILITY : What better vehicle to reduce commuting.

Provide accurate information to urban planners and traffic police, which intelligent transportation within the city in general. The alleviation of traffic congestion, improve the quality of life of citizens and business productivity. Conduct a comprehensive support available, or other means of transportation and taxi-bus Bike Transportation subway changes with the progress of development.

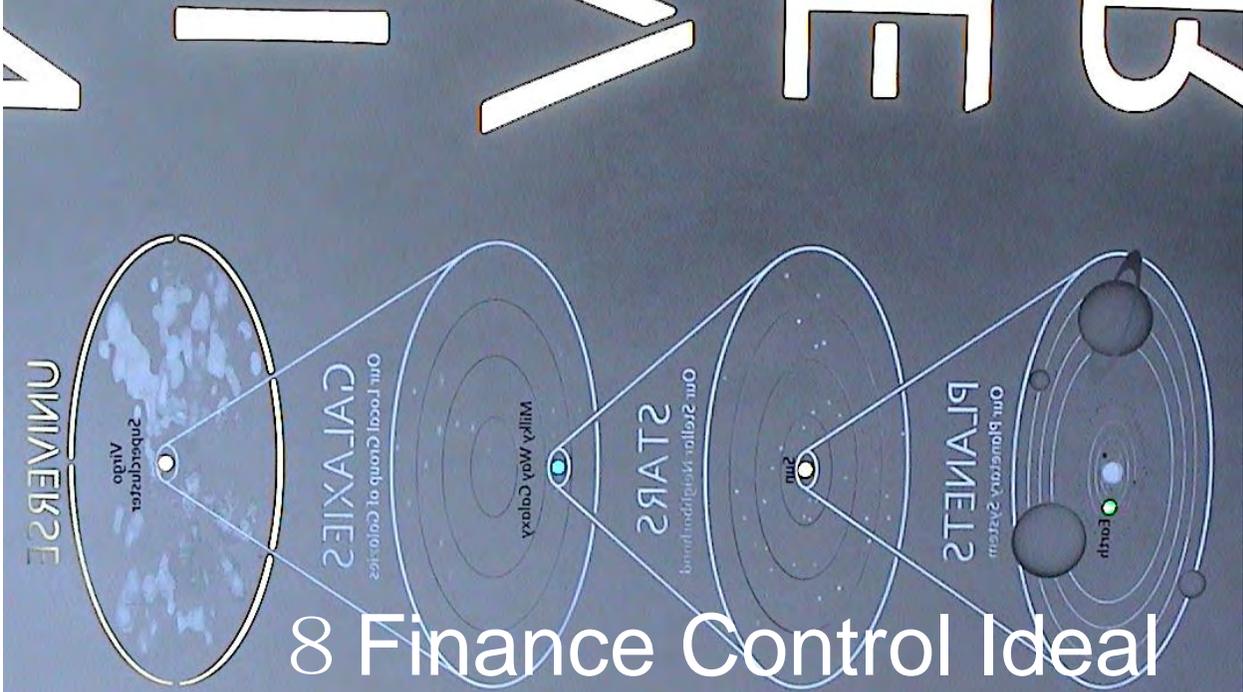
3 ; ENERGY / UTILITY : Energy utilities (electricity, gas and water), concrete, captures the scene as a living system to expand as heat and air, water. Get real-time information on energy use. Including the use of solar panels also provide management, energy trading and flexible, allowing you the responsibility. The user can use various utilities. The deployment of intelligent energy saving lives by getting an optimal solution.

4 ; MEDICAL SERVICE: ntelligent systems and health services. Prediction of disease prevention, optimal medical treatment can be explored. It cooperates at a patient's more exact selection. It is a result of effective use of data. A not less than 50% reduction of the cost of medical treatment can be desired.

5 ; CRISIS CONTROL: The intelligent city, as well as to address and advance the prevention and prediction through the effective use of advanced technology and regional data. Comprehensive support is available for emergencies and other crimes. Will reduce the administrative budget.

6 ; EDUCATION: Evaluate and guide a student systematically in each educational facilities, harnessing the feature of an organization. Various tools are used and educational instruction is possible at internal and external various places. By preparing required equipment, a more wonderful result is pulled out. It is an intelligent education system.

7 ; GOVERNMENT: Government to build an intelligent service system, to service all residents to smooth relations. Share information, promote collaboration advances. The optimized decision-making authority and government information officials.



**NEW FINANCIAL CENTER with LIVING SPACE**



# 1 ; Foods Management



食糧の管理





# 3 ; WATER

## MANAGEMENT

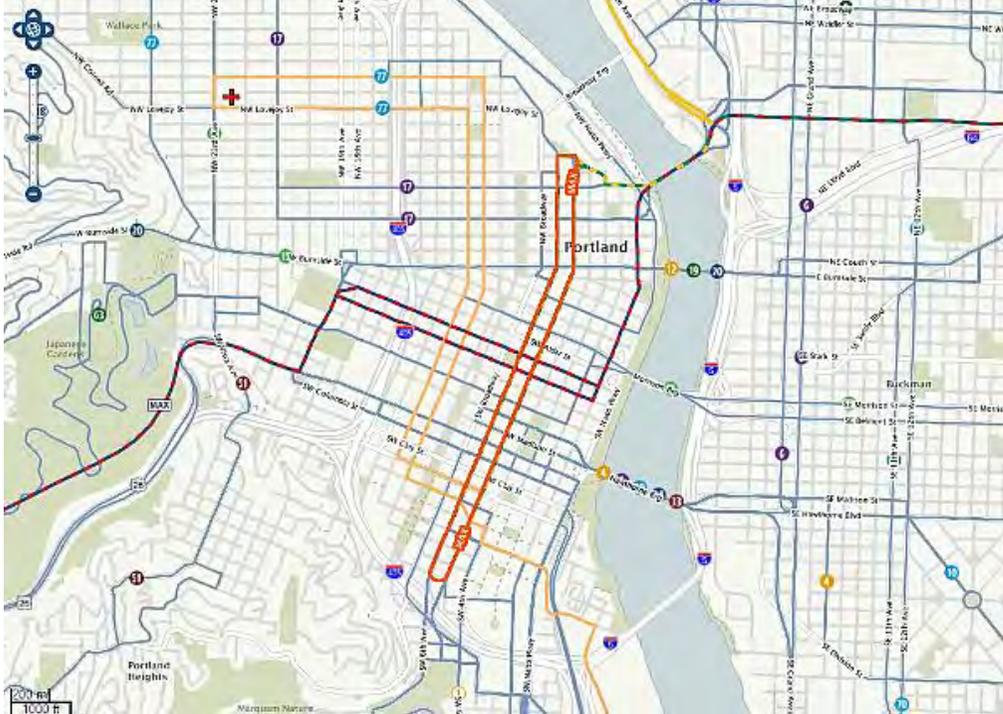
### 水の管理

LANSCAPE DESIGN

COOL AIR

NOT ONLY for HUMAN





# 4; TRANSPORTATION MANAGEMENT



## 移動体の管理

### PORTLAND *TriMet* SYSTEM

*TriMet* provides public transportation in the Portland, Oregon, metropolitan area.



It's easy to get around on *TriMet* using buses, MAX Light Rail, WES Commuter Rail, and the Portland Streetcar.



現在構想中のハイドロジェン車。スタルクならではのスタイリッシュかつ未来を感じさせるデザイン。

### Hybrid Vehicle Use



## 5 ; WASTE MANAGEMENT

## 廃棄物の管理

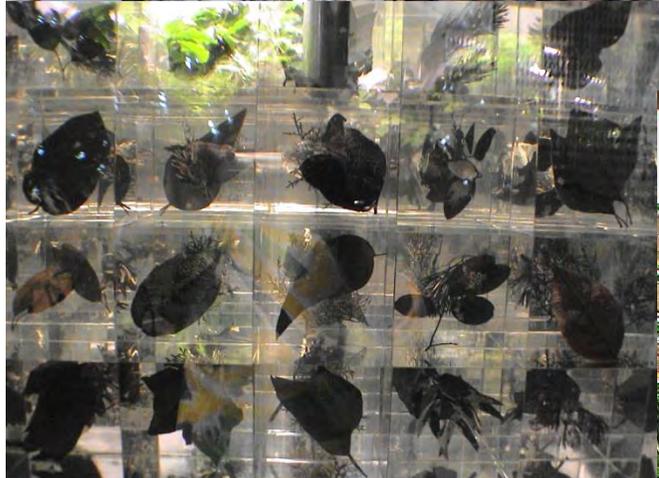




Seeds Management



# 6 ; BIODIVERSITY MANAGEMENT



生物多様性管理の管理



# 6 ; BIODIVERSITY MANAGEMENT

## 生物多様性管理の管理



WIEN 19C

greenhouse botanical garden



SPACE SHUTTLE LAUNCH SITE



7 ; NEW TECHNOLOGY MANAGEMENT

recycled resource — urban mine  
artificial works — eco products

HYBRID

ESCAPE from  
HEAT ISLAND

EXISTING  
CITY

URBAN

reflection  
thermal  
transportation  
retained water  
micro climate  
green  
cool spot

Circulation-Oriented Revitalization of  
Existing City & Neighborhood Nature

HUMAN SCALE

urban forest

park street

COOL

AGRICULTURE

absorbed CO2

material

URBAN

GREEN

FISHERY

photosynthesis

foods

RESORT

NEIBORHOOD  
NATURE

FORESTRY

supply O2

energy

WITH LIFE FORMS

on land  
CULTURE FARM

at sea

marine & land  
biomass

NATURE SCALE

bay area

FISH FARM

seafood

river

food chain

algae

farmland

hill

plant

mountain

forest

SOLAR SYSTEM

LIFE FORMS

TEMPERATURE

GREEN

ENERGY

CONTROL

CONTROL

CONTROL

CONTROL

**This model integrates  
culture, history, technology, and society  
in a self-sustaining structure**

**that allows man-made cities and self-recovering nature  
to exist together.**

**Responsibility in developing this model is shared  
through a consortium of a wide-ranging team  
of cultural and scientific specialists.**

**The team is led by architects specializing  
in designing living environments,  
and therefore aims at producing  
a practical and effective circulation-oriented city model.**



VISITED 50 COUNTRIES + 80 CITIES

# COOL

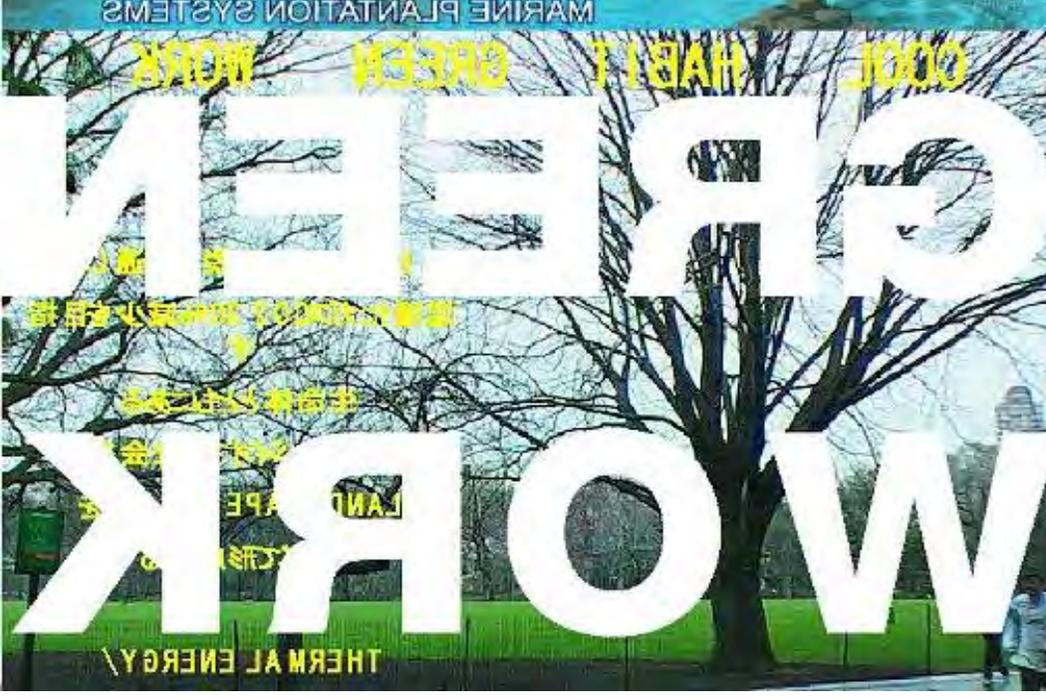
... model of ... oriented ... study of existing city & neighborhood nature

生命体とともにある都市のエコロジカルデザイン



# FRAGRANT HABITAT

edited by Tomonori YAMASAKI



# GREEN WORK

# LANDSCAPE



# DESIGN WORK

デザイナーはデザインの持つ構想力、技術力、感性の統合力を生かして提案する。

# LANDSCAPE