AQUA OSAKA: underwater city

Architecture: The Lake of Laughter contains an Underwater-City with a complex maze of shops and restaurants and playgrounds, centred on a huge circular Yoyo Dome. Dome of Joy as a symbol of Osaka’s unique Sense of Humor, appearing to float like a kumgo on the Lake.

Taking the Nanweusui Line from Kansai International Airport one arrives at AQUA OSAKA on the bottom floor of the huge Dome of Joy, rising 100 m into the Osaka sky, the biggest dome built so far.

All arcades and bazaars have a ceiling of glass which allows sunlight to enter during the day, and emit artificial light through the water during the night.

Image: Sense of Wonder and Excitement, this first Underwater City reflects Japan as a monsoon country with plenty of water resources. The climax of that feeling is experienced during the raining season.
Spaceship Earth as hosting entity (nature) is actually limitless. What limit it has is its ability to support living condition for its occupants (humankind). Living condition that is essential to all human regardless to their race, gender, nationality, religion, social status... Hence in the breach of ecological collapse; this condition can only be achieved through a state of common sovereignty and prosperity, a state where all human shall be –equally aware and able- to make radical change (Political premise).
A pluralistic perception of history is now generally accepted.

The modernity of each society must evolve from within its own traditions and culture.

In this way, multiple modernities will arise, each one profoundly different from the other.
Before the middle of the 21st century, the balance of power on the global stage will change, but it will not shift as much as having more players and being far more widely dispersed...

The entire centre-periphery structure of the present global economy would be subverted, and the world as we know it now will soon be dramatically changed both politically and culturally.
the widespread income gap between the rich and poor generated by globalization is not inevitable.
Densitification, Case Study: Jakarta

- **Low Income Group**: City Slums. No education, cannot afford. The basic Public Transportation services, and forcibly living on City Central’s Forbidden Geographies.

- **Middle Low Income Group**: Lower rank clerks, securities, cleaning service, etc. Lower to middle level of education. Live on the City’s Outer Ring and travels using Public Transport.

- **Middle High Income Group**: Higher rank clerks, managers, etc. High level of education. Cannot afford living in the City’s Center but already owns Private vehicle(s).

- **High Income Group**: Top managements, corporate owners, etc. Higher level of education. Can live in the City’s Center and or Outer Ring’s leisure escapes. Travel by luxurious Private vehicle(s).
Densitification, Case Study: Jakarta

High Income Group

Top managements, corporate owners, etc. Higher level of education. Can live in the City’s Center and or Outer Ring’s leisure escapes. Travel by luxurious Private vehicle(s).

Middle High Income Group

Higher rank clerks, managers, etc. High level of education. Cannot afford living in the City’s Center but already owns Private vehicle(s).

Middle Low Income Group

Lower rank clerks, securities, cleaning service, etc. Lower to middle level of education. Live on the City’s Outer Ring and travels using Public Transport.

Low Income Group

City Slums. No education, cannot afford The basic Public Transportation services, and forcibly living on City Central’s Forbidden Geographies.

Ability to live in the City Center

Ability to travel using Private vehicle(s)

Ability to travel using Public services
Densification, Case Study: Jakarta

- **High Income Group**: Top managements, corporate owners, etc. Higher level of education. Can live in the City’s Center and or Outer Ring’s leisure escapes. Travel by luxurious private vehicle(s).
- **Middle High Income Group**: Higher rank clerks, managers, etc. High level of education. Cannot afford living in the City’s Center but already owns private vehicle(s).
- **Middle Low Income Group**: Lower rank clerks, securities, cleaning service, etc. Lower to middle level of education. Live on the City’s Outer Ring and travels using Public Transport.
- **Low Income Group**: City Slums. No education. Cannot afford the basic Public Transportation services, and forcedly living on City Central’s Forbidden Geographies.
THE MYTH
Metabolism 1960, The Tokyo Plan
All is Changeless

From the view of Static Objects

Architecture: Point Object in Space

Towns: Field of Objects in 'Space'

1st Step: Introduction of the More Concept of 'Time' into 'Space'

Metabolic Structures

Architect: Element Structure in Space-Time

Spatio-temporally small-scale building operations, functionally short cycles of metabolic change, quantitatively small developments

Towns: Metastructure in Space-Time

2nd Step: Introduction of the More Inclusive Notions of 'Change' into 'Space'

Metamorphic Systems

Architecture: Micro-System in 'Change'

Metabolic system of one individual element structure, system of metamorphic fusion into the next element structure

Metabolic system of one individual meta-structure, system of metamorphosis from one in to the next metastructure

Towns: Macro-System in 'Change'

Change is the Changeless
Fig. 2. Growth of Tokyo

**METABOLISM** (quantitative change)

**METAMORPHISM** (qualitative change)

5th five-year plan

2nd five-year plan

3rd five-year plan

4th five-year plan

possible axial development in present city of Tokyo
BAMBOO TYPE COMMUNITY

竹

1 2 3 4 5 6 7 8 9
As long as the actual buildings get taller, bigger, more, and more monstrous in scale, as long as architecture is taken as a means of expression of power, be it of oneself or of any kind of vulgar occupation, which would be serving not ruling in society, the lack of greater flexibility and changing structures is just facts. Comparing this structure with any one of the traditional Japanese theories or modern methods suggested by the engineers, architects in Japan, it might be considered a more archaicism, a thousand years out of date, or to say the least, regressive, not silence of modern architecture in terms of theory and practice.

The work is less prepossessing than the thought. Some of this is definitely going wrongs. No critics are offered for knowing how to get the police or an ambulance.
Radical change is what required for humankind to survive, for the question that our generation must answer today is definitely not exclusively ecological one nor, it is politically or economically secluded. It is about all the –ism- there is combined. Despite of its name, Static City theory is not just another traditionally blind-folded urbanism talks. Through this paper the theory will jump from discussing macro economy performance and Political Economy remapping, to philosophically tackle urban disorders as attempt to solve problems right in the heart where three quarter of human lives.
EXPERIMENT 1

Taichung
Our design of the Taipei 101 Tower started with a systematic investigation into the two extremes of structures in the basic shape of towers: the typical office tower and the typical observation tower.

If we were to follow the first category of the office tower which was best represented by the WTC Twin Towers in New York and stretched the required program of the total of 14 thousand square meters up to a height of 300 meters, the resulting area per floor would be just 18 x 18 meters. In this arrangement a single central core would cause a very inefficient vertical transport system with everyone focusing in onto one central base point. This undesirable arrangement made us subtract 860 square meter from the program of the Executive Lounge and the Observatories and use them as contents for the very top of the Observation Tower at 300 height.

If we were to follow the second category of an usual observation tower as visible in the Tower in Seattle we would arrive at a design of a solitary tower with the mentioned 800 square meters placed at the very top and the tower itself sitting on a massive horizontal podium structure that would contain the 15 2 thousand square meters of required programs. To our mind this would not result into an image of a harmonious composition.

Our proposal is to dissolve the massive podium structure and replace it with a rising Hanging Gardens out of which arises a central Tower of the Sky. An image of harmony between the sky and the earth, where the sunlight provides all energy and the green of the earth transforming into our nourishment.

Only through harmony between these two poles, between Yin and Yang can we achieve an enjoyable and sustainable life for all - not only human but all living beings on earth.
Our vision for the Taiwan Tower is to create a New Age image of Sun Tower surrounded by spirally rising 'Hanging Gardens.' We started by laying out all the terraces' 13,200 square meters of program into a linear form and then folded this continuous slab with roof gardens on top of it into a triangular spiral form to meet the site's area and shape. That pure form was then rearranged to produce a feasible building where the continuous spiral structure would be supported by three vertical cores, one each at each of the triangle's edges.

These three cores provide three highly convenient vertical transport systems where crowds can be divided into three different directions at ground floor. The required functional programs are accommodated inside these 'hanging bridges' between the cores, whereas gardens are planted on top of these bridges, transforming them practically into 'hanging gardens.'

The 'hanging bridges' attached secondary structure is supported by secondary structural brass system.

台灣塔的圖像會是整個時代的象徵，塔尖層通過懸掛式綠化方式進行。我們將其表面設計為一個螺旋形的結構，並且通過一系列的機械設計來實現這個概念。塔尖層的空間以三角形的形式設計，並通過一組懸掛式綠化系統與其他部分的結構進行連接，形成一個在懸掛式綠化系統中的三角形的空間。這些結構是未來建築設計的基礎。
Vertical transport systems in both (3) Earth Platforms and (1) Sky Tower cores are each composed from 2 medium size elevators. The whole vertical transport design concept is about crowd separation achieve by dividing access into smaller systems to avoid the use of large size centralised elevators. As the result, each elevators hold smaller load which eventually possible to transport in faster rate.

Regardless its height, each of Earth Platforms' elevators only serve maximum 11 floors. On the other hand, Sky Tower transport system also divided into 3 cluster systems, 1 for Ground to Observatories, 1 for Executive Lounge Express, and another 1 for Earth-to-Sky Tower(s) vertical transport interchange.

天之塔及地之平的垂直運輸系統核心是由分層中等層次的電梯構成。整個垂直運輸設計概念是由

謝安（入）入口及設備入門口的人流取樣，當人流較大是選用較小型的電梯。這樣做的人流是像電梯那樣小

可以達到運輸更快的速度的原則。

天之塔一個樓層的電梯層級是設計為階層十六層，而地之平的運輸系統有三等級的電梯

第一類是地面層至觀景層；第二類是專門設有貴賓休息室；最後一種是專門設有觀景層對地之平

天之塔。
FUNCTIONAL PROGRAMATIC SCHEME

The Functional Programmatic Scheme illustrates the various functional areas and their interconnections within the building. The scheme includes a detailed breakdown of areas such as office, retail, amenity, and parking, along with the respective floor plans and elevations. The diagram provides a clear visual representation of the building's layout, showcasing how different functional zones are organized and connected.

PROGRAMMATIC DETAIL

This section provides a more detailed look at specific areas within the building, including space requirements, functional specifications, and technical details. It includes elevations, floor plans, and sections that highlight the architectural design and engineering aspects of the project. The detailed information is crucial for understanding the technical feasibility and execution of the building's design.

The diagram and text together offer a comprehensive overview of the building's functional and programmatic aspects, ensuring that all stakeholders have a clear understanding of the project's objectives and requirements.
SKY TOWER

WIND LOAD CONSIDERATION

Regarding the close narrow spacing between the Tower of the Sun and the Hanging Gardens causing the possibility of wind turbulence, the Central Tower is designed with a circular plan for aerodynamic reasons, while the three cores of the Hanging Gardens are designed in double-edge triangular plans for good redirection purpose.
OBSERVATORY POD 1/2
個人觀景台區

LEVEL 4 FLOORPLAN
四樓平面

LEVEL 3 FLOORPLAN
三樓平面

LEVEL 2 FLOORPLAN
二樓平面

LEVEL 1 FLOORPLAN
一樓平面

POD SECTION
個人觀景台剖面

POD OVERHANG BEAMPLAN
個人觀景台懸挑平面
ENERGY MANAGEMENT

WIND POWER SCENARIO

Echon the success of Kaoru wind-tunneling, in relevance to the wind direction graph, our aim is to use the building’s triangular shape to redirect the wind flow and "collect" them in already set locations. By installing horizontal wind turbines on the northern sides of the wind tower, and vertical wind turbines on the south and south east sides, we are proposing to "harvest" the wind power energy.

In order to maximise the wind energy and reduce wind and noise impact, we also propose to use the triangular structure to direct the wind to areas of the building where the impact is minimal.

SOLAR POWER SCENARIO

In relevance to the all year long sunshine and low altitude, massive layers of photovoltaic cells are installed to the west side of the building, facing the sun. The energy generated will be used to power the building.

DESIGN APPLICATION

In the overall design application, voids in between the hanging gardens help to create dynamic "flow of wind current", that is overlapping and thus re-harvest-able on different part of the tower. Meanwhile the use of "water" cools down the building in summer and keeps the area well-ventilated.

At ground level, the large green spaces help to create a pleasant outdoor environment, while the vertical gardens add a green dimension to the building.
LOBBY & ENTRANCE MANAGEMENT

UNDERGROUND FOUNDATION SCHEME
地下基座空間計劃

- Outer Triangle (Podium)
  外三角 (地面建築)
  1,485 x 3
  4,455 m²
- Inner Triangle (Earth Platform)
  內三角 (地面建築)
  2,476 m²
- Inner Square (Sky Tower)
  中央廣場 (天之場)
  857 m²

TOTAL 合計
7,791 m²

in relevance to 1 hectare maximum foundation area, our design is 2,309 m² in excess.

GROUND FLOOR BUILDING FOOTPRINT
地面層建築投影

- Podium Buildings
  地面建築
  576 x 2
  1,152 m²
- Podium Edges
  地面建築邊緣
  250 x 2
  500 m²
- Podium Columns
  地面柱
  1 x 25
  24 m²
- Earth Platform Cones
  空中花園
  133 x 8
  999 m²
- Sky Tower Core
  天之場
  314 x 1
  314 m²

TOTAL 合計
2,598 m²

In relevance to the building footprint issue, The Helix Tower as a hanging garden poses 12 roof gardens and another 6 on its podium with total area of 10,488 m² vertical green, giving excess of 7,379 m² footprint area.

The Helix Tower has 12 rooftop gardens, plus another 6 on its podium. The total vertical green area is 10,488 m², giving an excess of 7,379 m² footprint area.
Our proposal for Taiwan Tower's Hanging Garden concept poses 18 Blocks of Hanging Gardens across 3 sectors. The first sector is the podium garden (Roof Garden Series 1) consisting of 6 block roof gardens each with hill-scape direct access from the ground level. The second sector is the public garden, consisting of building 1-3 (Roof Garden Series 2) and building 4-6 (Roof Garden Series 3). In coherence to the Public Circulation Scenario, the public activity is to stop at Sky Bridge, which prevents access to the next sector. The last sector is the private garden belongs to the offices, consists of Building 7-9 (Roof Garden Series 4) and building 10-12 (Roof Garden Series 5). Each of the 18 blocks have dimensions of 12m x 48m, which in total we propose a tower design with 10,368 sqm vertical green, a massive urbanscape above the ground with complete 360 degrees multi level views of Taichung City. A truly sustainable museum of development.
Earth Platform 'Hanging Garden' is directly accessible from the ground level, and is strong enough to bear dense light plantation. Hanging Earth Platform planting diversity.
SKY TOWER EXPANSION MODULE

Our expansion module started from ‘functioning’ the tower’s moonfish itself. This is done by ‘inserting’ office spaces ‘in between’ the three sky platforms and observatories. Triangular (tri-based) plans are permuted 30’ to resemble ROC national symbol, transforming the landmark tower into one functional tower.

12-Side-Star based plans
(Sky Garden Lobby)

十二星芒羅成的平面
(空中花園大廳)

Structural System
結構系統

Spatial System
空間系統

Triangular based plans
(Office Tower)

三角形羅成的平面
(辦公樓)
LANDSCAPE IN THE SKY
天空的景觀

The refurnishing of Sky Tower brings new possibility in installing terraces of shrubs. The Sky terraces will not be accessible due to its extreme height. The terraces have more of sustainable rather than functional reason. The shrubs planted are used to filter the sun reflection over the high glass facade, reducing the carbon load of the building.

The next principle of our expansion module is the reenacting the Earth Platform. ‘Refunctioned’ as dwelling spaces, basic rigid frame structural system are propose to strengthen the hanging cantilever, allowing more load to bear, and most importantly, more plantation to be planted in between the platforms. Green dwelling scotscape in the sky, a new definition of sustainable living.

Expanded Sky Tower planting directory.
URBAN TISSUE EXPANSION POSSIBILITIES

As an open-ended expansion module, the Taiwan Tower development is designed to evolve and change according to the needs and wishes of its future occupants. It does not only provide accommodation to live in, but also contains everyday services necessary for such large complexes, such as grocery stores and shopping malls, as well as social institutions, such as schools, hospitals, and police stations.

The Earth Platform’s Expansion Model will not only accommodate spaces for luxury connotations, but also for common social housing.

The Taiwan Tower’s design will be developed with a view to the future of its users and the needs of its residents. It also includes a wide range of facilities such as schools, hospitals, and shopping malls.

The Sky Tower, an office tower, is located at the top of the building. The Public Facilities are located at the bottom of the building. The Social Housing and the EARTH PLATFORM Housing Tower are located in the middle of the building.
DWELLING SCENARIO 1: CONDOMINIUM

Keyplan

4 Condominium Units per floor = 12 Condominium Units per Earth Platform

Unit Plan
DWELLING SCENARIO 2: SOCIAL HOUSING

Keyplan

16 Social Housing per floor = 48 Social Housing per Earth Platform

Unit Plan
Through the flexibl mechanism of the Expansion Module, the Taiwan Tower itself will become Taichung Gateway City. It is designed in such a form to expand openly through the influence of many owners, many contracts, and over many layers of time. Thus, in an adaptive process of gradual growth the Taichung development will ultimately result in a vertical city of a scale never seen before.
The Expansion Module would also facilitate and celebrate the birth of Taichung Gateway Forest. Occupying 152 hectares of the city area, the forest would be using the Taiwan Tower’s hollow podium and rich voids to completely entice with the man-made domains. Far from a philosophy of a man-made park as a purely decorative and aesthetic purpose, the Taichung Gateway Forest should fulfill a double role: first, to infuse the whole development as an example of modern green planning and green architecture and thus to integrate spaces for humans and other living beings. The second role will be to help nature to heal itself in our industrial urban landscapes. We as parts of nature will have to re-learn the ways of nature by actively participating in the process of planting and maintaining nature over time. Both roles are essential to create a sustainable urban environment for our future generations.
City as Garden and Garden as City

The SKY TOWERS are suggested quasi-as economic beacons of the nation, to be built as a vertical CBD in an ever changing metropolis. The EARTH PLATFORMS, however, offer simultaneously man-built landscapes, latest solar energy collectors, high-rise agriculture and green living spaces. In many industrialized urban civilizations where original natural landscapes will become extinct, the only way for human survival will be to harvest his food on man-made ground high-up on multi-story platforms. Here these spaces are directly connected to their counterparts, the Sky Towers for modern work. Mechanical interurban traffic will thus be reduced. Result: a dream of modern architecture: City as Garden and Garden as City.
**ORIGINAL MASTERPLAN**

言總體規劃

台南門口城市
台南塔
台南門口公園

**Taichung Gateway City = 254 hectares (100%)**
**Taichung Tower = 4.3 hectares (1.69%)**
**Taichung Gateway Park = 68 hectares (26.77%)**

**OUR EXPANSION PLAN**

我們的擴充計劃

台南門口城市
台南塔
台南門口公園

**Taichung Gateway City = 254 hectares (100%)**
**FUNCTIONAL Taichung Tower = 76 hectares (30%)**
**Taichung Gateway Forest = 152 hectares (60%)**
**Circulation = 25 hectares (10%)**
EXPERIMENT 2

Jakarta
STATIC CITY Densitification, Case Study: Jakarta

1. TAHAP NORMALISASI
2. TAHAP STATIKFIKASI

15 koridor busway transjakarta beserta hub nya

0 jalur KRL beserta hub nya

STATIC CITY Densitification, Case Study: Jakarta

2. TAHAP STATIKFIKASI

2 sungai induk: Ciswung dan Cipinang

sungai besar lintas propinsi

Expanding to Forbidden Geographies
Expanding to Forbidden Geographies
Expanding to Forbidden Geographies
STATIC CITY on MOVEMENT
NORMALIZATION EXPERIMENTS
All the states of Heterotopias must be considered as complete elementary facts to arrive at the right solution. Mobility is the main issue as most densely populated emerging cities failed to provide affordable and fast mobility services. The dependency upon international aid and the issue of fossil fuel depletion make the mobility reformation even harder, if not an impossible task. Thus, the city must be deconstructed into Static City: city without mobility.
To provide the low and middle income groups with spaces, city’s collages must also be deconstructed further, creating a series of reforms that not only recycle the city but also revolutionise it completely. The ‘Urban Design’ needs to be transformed onto more focus Urban Architecture — a building-sized architecture that is designed to create impact on the city-scale.
STATIC CITY on FOOD SOVEREIGNTY
STATIFICATION EXPERIMENTS
STATIC CITY on HABITAT
Hyper-densitification on Transportation Trails

Existential Minimalism
(see video)
STATIC CITY on HABITAT
Ruralization of Water Trails
Maximization of Land Use
...if the world is confined as Mother Nature and human being; then the destruction of the planet will also means the downfall of the human civilization... Catastrophic turmoil was generated when generations after generations of human being failed to see this (the) paradox, only to be deceived by what they believed to be the ever-growing (economic) progress... this (living) condition can only be achieved through a state of common sovereignty and prosperity, a state where all human shall be – equally aware and able- to make radical change... the question that our generation must answer today is definitely not exclusively ecological one nor, it is politically or economically secluded. It is about all the –ism- there is combined.
THANK YOU

Eka Swadiansa