TOKYO’S NEXT METABOLISM

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CORE METABOLISM of 1960s’

The world influencing concept particularly responded to the post-war situation of Japan. As being Japan’s capital city, Tokyo was targeted to be attacked during the war. A series of firebombing air raids were conducted by the United States Army Air Forces (USAAF) during the Pacific campaigns of World War II between 1942 and 1945 (Fig 1). Following by the explosions of the world’s first and second atomic bombs on the Japanese cities of Hiroshima and Nagasaki respectively, Japan announced its intention to surrender which brought the end of the Second World War on September 1945 (Grisi, 2007).

The Metabolists believed that it was an opportunity to build something better rather than restoring the original one based on “tabula rasa concept”.

... when we saw our national land turned into a scorned earth with sporadic burnt concrete structures, we had a dream and hope of drawing a new city as if from a blank white sheet...” as stated by Kenzo Tange, reflected the intention to rebuild and radically transform the nation as a whole (Fig 3) (Taman, 2014).

Moreover, All of the Metabolists belonged to the generation that witnessed the destruction of Japan and the collapse of imperial Japan. They had witnessed the tragic situation of the nuclear holocaust in their country during World War II, even for the youngest member of the Metabolists, Kisho Kurokawa, who was 11 years old when the atomic bomb exploded in 1945. These series of catastrophes caused extensive and severe damage to their psyche. They were undoubtedly shocked and traumatized by these unprecedented incidents. The profound tragedies they experienced would reflect their perception of the future world. They could no longer believe in an eternal stable society. Futurist utopianism offered them a compensatory escape from the tragic reality. The more catastrophic the society in which they lived, the more they needed a utopian fantasy. As a result, based on the concept of “megastucture” with a strong belief in technological innovation (Banham, 1976, p.45), Core Metabolism Architecture suggested that the city was going to be constructed with permanent infrastructural core and plugged in with replaceable component units such as capsules (Fig 4). In case of damage or decay, the replaceable components could be unplugged and replaced with a new ones. The buildings were therefore renewable and the urban fabric was sustainable over time.

The Metabolism Architecture was first appeared in the World Design Conference 1960 in Tokyo (Fig 1) as part of the manifesto proposed by a group of Japanese architects, known as the Metabolists. Young architects Kiyonori Kikutake, Kisho Kurokawa, Fumihiko Maki, Masato Okita and the architectural critic Noboru Kawazoe, led by Kenzo Tange, had similar beliefs to suggest a new urban utopia which promoted a cylicscape compounded of replaceable components adapting to the changing environment.

NEW METABOLISM of 2000s’

Yet, Tokyo was developed in a totally different way in which there were no replaceable components. It related greatly to the mitagation of population expansion. Because of the great improvement of medical conditions throughout Japan after the war, the life expectancy of Japanese has been increasing since the pre-war period. With the combined effect of low birth rate, the pressure on dwelling demand and thus the need of megastucture actually has not ever existed over the last half century. The government refined the policy that encouraged individuals towards landownership, which turned to create a drive to construct their own private homes. Detached houses formed the city as a result after the war.

An inheritance tax is imposed when the head of a household changes in Japan. With the mitigating population growth in the 2000s, an only child would have to afford the whole amount of the imposed inheritance tax of the property received. The high inheritance tax becomes unaffordable for a single child who by necessity must resort to measures such as subdividing and selling the property (Kitayama, Tsukamoto and Nishizawa, 2010, p.38). The higher the tax assessment becomes, the more likely it is for a large property to be subdivided. The continuous sub-division of the urban land results in smaller property sizes, which turned to push the exterior wall of the structure towards the boundary of the lot. The spaces in-between the properties, which were originally big enough to allow for a garden – the place where inhabitants usually spent time outside of the house, became gaps without social life. Yoshiharu Tsukamoto of Atelier Bow-Wow stated it was the urban spaces of the city that metabolized throughout generations, rather than the solid buildings. He responded to this phenomenon and designed Void Metabolism Architecture to allow these gap spaces in the urban. Taking his own property as an experiment, House & Atelier Bow-Wow designed in 2005 was deliberately allocated towards the gap, so that a virtual extension of the gap generated the centre of the house. This created a sense of living in this gap and bringing the inside life outside to permeate in the streetscape (Fig 6 & Fig 7).

Fig 3. Tokyo was targeted to be attacked during the war

Besides the gap spaces among the city, the city became more and more difficult to invite people home as it seemed to cause discomfort for anyone outside the family to be in the house because of the policy of individual home ownership. To reverse this spiral of intolerance, multiple usages of the spaces of the house was introduced, as a result, not only non-family members can engage with the house to make the house more open, but also the quality of the spaces can be improved as it is determined by activities on the time scale of the city in Tokyo.

The trend of Metabolism Architecture evolution was projected. From Core Metabolism to Void Metabolism, the size of structure reduced while the urban space is released. Based on this precedent trend, the next Metabolism model was projected as smaller size of structure with larger urban space (Fig 9).

There will be less and less structures sitting on the urban land in the projected cityscape of Tokyo in the future after loops of renovation cycle have passed. Indoor activities are thus influenced and restricted to the meaning buildings, in terms of location and size. As the number of houses is decreasing, it may become impossible to have one structure accommodating only one activity or use. As a result, different activities will be forced and confined within a single structure. Property size in the future, however, is getting smaller to the minimal slope in the lot to the house. As a result, the space of the property becomes impossible to have one structure accommodating only one activity or use. As a result, different activities will be forced and confined within a single structure. Property size in the future, however, is getting smaller to the minimal.

Fig 4. Core Metabolism Architecture

Fig 5. The Japanese, urban land and Japanese housing are sharing a time scale of 30-year cycle

Next Metabolism proposed to design multiple usages of the spaces in the house. By adopting flexible facilities, “House moves, I don’t move.” (Dirksen, 2013). This concept demonstrates the evolving of the spatial use in the house. By adopting flexible facilities, “House moves, I don’t move.” (Dirksen, 2013).

In Hong Kong is one of the examples to demonstrate the evolving of the spatial use in the house. By adopting flexible facilities, “House moves, I don’t move.” (Dirksen, 2013).

LITERATURE CITED


Dirksen, K. (2013). Extreme transformer in Hong Kong: Gary Chang’s 24 rooms in 1. Available at: https://

Core Metabolism Architecture: a new cityscape

Fig 1. The Metabolism of the next Cityscape

METHODOLOGY

The projection is certainly based on the principle that these unknown-determining factors remain unchanged, such as the policy of birth control and the policy of inheritance tax. Afterwards, the induced effects were pushed to the extreme. Moreover, All of the Metabolists belonged to the generation that witnessed the destruction of Japan and the collapse of imperial Japan. They had witnessed the tragic situation of the nuclear holocaust in their country during World War II, even for the youngest member of the Metabolists, Kisho Kurokawa, who was 11 years old when the atomic bomb exploded in 1945. These series of catastrophes caused extensive and severe damage to their psyche. They were undoubtedly shocked and traumatized by these unprecedented incidents. The profound tragedies they experienced would reflect their perception of the future world. They could no longer believe in an eternal stable society. Futurist utopianism offered them a compensatory escape from the tragic reality. The more catastrophic the society in which they lived, the more they needed a utopian fantasy. As a result, based on the concept of “megastucture” with a strong belief in technological innovation (Banham, 1976, p.45), Core Metabolism Architecture suggested that the city was going to be constructed with permanent infrastructural core and plugged in with replaceable component units such as capsules (Fig 4). In case of damage or decay, the replaceable components could be unplugged and replaced with a new ones. The buildings were therefore renewable and the urban fabric was sustainable over time.