

# Metabolism: Utopian Urbanism and the Japanese Modern Architecture Movement

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## Abstract

The Fukushima catastrophe has led to important practical and conceptual shifts in contemporary Japanese architecture which in turn has led to a re-evaluation of the influential 1960s Japanese modern architecture movement, Metabolism. The Metabolists had the ambition to create a new Japanese society through technoutopian city planning. The new generation of Japanese architects, after the Fukushima event, no longer seek evolutionally social change; rather, the disaster has made them re-consider what architecture is and what architects can do for people who had everything snatched from them by technology (nuclear power station) and nature (earthquake and tsunami). Drawing on the architectural projects of Tange Kenzo and Metabolists in the 1960s and Ito Toyo's 'Home-for-All project' in 2011, the paper explores this major paradigm shift in Japanese architectural theory and practices.

## Keywords

generic city, Japan, megastructure, metabolism, modern architecture, utopian urbanism

## Introduction

On 11 March 2011, a mega earthquake of magnitude 9.0 hit the Pacific coast of Tohoku, Japan. Now known as the Great East Japan Earthquake, it was the most destructive earthquake ever to have hit Japan and the fifth most powerful earthquake in the world since 1900. It was responsible for the Fukushima Daiichi Nuclear Power Station incident which has produced a series of ongoing serious problems from leaking radiation. Over 250,000 people are still living in public temporary accommodation, hospitals, and relatives' houses or renting private flats.<sup>1</sup>

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The accompanying massive tsunami which reached 40.5 meters at the highest point wiped away almost everything in the affected area. The official casualty record on 10 March 2014 shows 15,884 deaths and 2633 missing<sup>2</sup> plus over 400,000 houses and buildings destroyed.<sup>3</sup> These series of incidents caused extensive and severe damage to not only the infrastructures of the affected area but also the Japanese people's psyche.

Confronting the ruins has prompted the Japanese to not only reconsider how to rebuild their lives, but also to work towards an alternative understanding of the complex human-nature relationship. This particular combination of natural and man-made disasters inevitably raises questions about Japanese modernity and the faith in modernization in the post-war era. One of Japan's leading architects, Toyo Ito, remarks:

The reported scene of a fishing village in Sanriku [northern coast of the Tohoku region facing the Pacific Ocean] devoured in seconds by the tsunami struck me and made me wonder what Japan's 60 years of modernization since the war was all about. . . . I am amazed by the fragile state of things despite all the economic and technological 'strength' Japan has been so proud of. . . . Was our achievement of the past several decades a house of cards? (Koolhaas and Obrist, 2011: 697)

Japan is now faced with finding a different way of living which problematizes many fundamental features of Japanese society. Yet this was, nevertheless, not the first time this type of experience had occurred in Japanese history. The massive destruction of Japanese cities in the Second World War created a feeling of emptiness and despondency, at the same time as it produced a great opportunity to transform architectural philosophy and practice. Given the need to rebuild the devastated cities along with reinvigorating the economy, new urban planning proposals were needed. As a defeated nation, Japan suffered from a crisis of national identity and thus sought to re-construct its cities as well as to re-make the new image of Japan.

The modern architectural movement Metabolism originated in the 1960s and represented a new conceptualization of architecture and the city landscape which embraced utopian futurism. Metabolism offered the opportunity to re-construct the national image and to establish the social role of modern architects in Japan. In doing so, the Metabolists followed the modern utopian architectural assumptions in believing that architects could change society and people's habits for the good: in effect, they saw their mission as 'social architects'.

Their architectural conception was based on the mega scale and the total city plan. Rather than designing single, or sets of, large buildings, they sought to design the whole city. The Metabolists' ambitious dream

largely relied on the concept of 'megastructure', engaging with futuristic, high-tech and utopian architectural design and total city regulation systems. Here we can see there is an inescapable paradox between their idealistic philosophical conception and their aim to practically design the city (see Lin, 2010: 95). On the one hand, the Metabolists pursued the goal of egalitarian and democratic living environments for as many people as possible. They believed that the mass production and systematic quality control of materials by development architectural technology could make it possible to create innovative living spaces. On the other hand, the central control system for the megastructure ultimately requires centralization and planned control, in line with the Metabolists' main ambition to be 'social architects' and social engineers.

The Metabolists, then, believed that their new conceptualization of urban design helped legitimate not only their identity as modern architects but also established a more utopian image of a future Japan. In developing their theory, the Metabolists sought to promote the idea that the city could be regarded as a supra-individual organism which could generate its own autopoietic momentum/force. The concept of metabolism is profoundly associated with ideas of natural processes and organismic development. The architecture of the 20th century, 'the age of the machine', was often characterized by Le Corbusier's declaration that the home was a machine for living. For him, 'the futurist city of Antonio Sant'Elia was an expression of the dynamism of the machine' (Kurokawa, 1994: 16). The machine seemed to promise a dream-like future. In contrast to 'the age of the machine', the Metabolists advocated 'the age of life'. As one of the renowned Metabolists, Kisho Kurokawa, remarks: 'Machines do not grow, change or metabolise of their own accord. "Metabolism" was indeed an excellent choice for a key word to announce the beginning of "the age of life"' (Kurokawa, 1994: 24).

Although Rem Koolhaas's (1995) architectural philosophy (city *without* history – the city that acknowledges its debt to the past) and the Metabolists' (city *with* history) had very different senses of history, there are some interesting common resonances with Koolhaas's notion of the generic city with its emphasis on 'mutations' and 'autopoiesis'.

Rem Koolhaas and Hans Ulrich Obrist's recent book, *Project Japan*, appeared in 2011. It consists of interviews with the surviving members of Metabolism and people around them, along with a good deal of archival information and brilliant images. The book provides 'a vivid documentary of the last avant-garde movement and the last moment that architecture was a public rather than a private affair' (Koolhaas and Obrist, 2011: cover comment). Metabolism can be looked back on as the nostalgic glory-days of Japanese architects. The Metabolists sought to establish a higher and more influential social status for architects who could reinvent the concept of modern architecture.

Recent architectural thought has become more in tune with the business climate and follows the principle of free-market capitalism or, in other words, neoliberalism. Architects today can no longer expect to be the powerful engine of modernization. They can no longer plan to transform the nation via public architectural power in conjunction with a strategic government alliance.

After the zenith of their movement at Expo '70, Metabolism started to decline with the 1973 oil crisis. This shows the fragility of the power of public architecture and points to the vulnerability of modern architectural beliefs. The mega scale of the city plan with the concept of the megastructure was put into question and became domestically unrealizable, yet they found alternatives in 'the combined demands of independence of Africa, a modernizing Islam in North Africa and the Middle East, and the emergence of Singapore, where the Metabolist aesthetic is first established on the scale of an entire city-state (not by the Japanese, but by gifted locals)' (Koolhaas and Obrist, 2011: 14). This can easily remind us of OMA's own astonishing, but also problematic, works in the Persian Gulf and China where there was a concern with national branding through the creation of extraordinary buildings.

One of the questions Koolhaas and Obrist address is whether the promotion of avant-garde architecture with major city plans to alter a nation's physical and political landscape can only be realized if they are given a tabula rasa. For Koolhaas, the utopian idealism of the new urban plan suggests that Metabolism can be seen as the golden age of architecture. At the same time, his concern is that it can be looked on with nostalgia, because it is hard to realize in contemporary neoliberal society.

Hence, Metabolism can be seen as a telling example to illustrate the contemporary dilemma about the power and significance of architecture. This paper considers Metabolism as a modern architectural movement, and discusses the way in which Metabolism's techno-utopian futurism might be understood through Japanese sensitivities. It also explores the socio-cultural role of Japanese architects since the 1960s. In the first part, the focus is on one of the most influential Japanese architects, Kenzo Tange, who made an enormous contribution to Metabolism before and after the Second World War. In the second part, the paper focuses more on the conceptual level of Metabolism and considers their problematic philosophy as utopian modern architects. It considers the ways in which the concept of megastructure was deeply controversial in terms of the realization of people's autonomy to create their own aesthetic lifestyles and sensibilities and to guarantee their equality and freedom. This was because the centralization of the total city system was inevitably programmed into the concept of megastructure and thus entailed the risk of censorship/surveillance at every level of the inhabitants' urban life. To conclude, the paper seeks to position Metabolism in continuity with classical utopianism and situate it against the background of the 1960s

Japanese social context to argue that the Metabolists could usefully be characterized as ‘social architects’. Metabolism is therefore a useful example to illustrate the critical conflicts between architectural philosophy and the exigencies of the market in contemporary neoliberal societies.

## The Emergence of Metabolism

### *The Debut of Metabolism*

Kenzo Tange was the key person who nurtured and developed the Metabolism movement. After the success of his Hiroshima Peace Memorial Park project, which was recognized by Josep Lluís Sert at Le Corbusier’s studio, he was invited to participate in the Congrès International d’Architecture Moderne (CIAM) conference in Hoddesdon, England, in 1951 (Koolhaas and Obrist, 2011: 110). Tange’s plan was well received and appealed to participants in the CIAM conference. This was the moment when Tange’s reputation became established as an internationally well-known modern architect.<sup>4</sup> The expansion of Tange’s international network accordingly provided his students at the University of Tokyo with new perspectives through the encounter with the modern architectural movements in the West.<sup>5</sup>

Tange’s growing international reputation made it possible to invite the world’s leading modern architects (Louis Kahn, Alison and Peter Smithson and Ralph Erskine) to the World Design Conference which took place in Tokyo in 1960. Tange’s assistant, Takeshi Asada, took the initiative for the preparation and selection of the conference committee and working group which consisted of young active architects, architectural critics and designers. Thanks to Asada’s leadership and his broader vision of the future of Japanese architecture, the group grew into the avant-garde architectural activist movement known as Metabolism.

With the strong support of Asada, Noboru Kawazoe, Noriaki (Kisho) Kurokawa, Kiyonori Kikutake, Masato Ota, and Fumihiko Maki, all initial members of Metabolism, completed a short pamphlet, ‘Metabolism 1960: The Proposal for New Urbanism’, which was distributed by Kurokawa and Kiyonori Awazu to the international avant-garde delegates of the World Design Conference for their own purposes.<sup>6</sup>

In the introduction, Kawazoe wrote:

Metabolism is the name of the group, in which each member proposes future designs of our coming world through his concrete designs and illustrations. We regard human society as a vital process – a continuous development from atom to nebula. The reason why we use such a biological word, metabolism, is that we believe design

and technology should be a denotation of human vitality. We are not going to accept metabolism as a natural historical process, but we are trying to encourage active metabolic development of our society through our proposals.

Thanks to their successful informal debut at the World Design Conference, the Metabolists consequently became internationally acknowledged as avant-garde architects who developed a new concept of the future city along with innovative architectural design.

### *Biology and Metabolism*

The term Metabolism (*metaborisumu*) was used as the group's name to express the basic idea of architectural design and city planning. They believed that the city was an organic entity which has the function of metabolism (*shinchintaisha*). This meant 'regeneration' or 'replacement of the old with the new' and was seen as 'one of the most essential features of living things' (Kawazoe cited in Koolhaas and Obrist, 2011: 235). Kawazoe was the person who chose the term Metabolism, which appeared first in his introduction to the pamphlet 'Metabolism 1960'. For him, Metabolism was regarded as the most appropriate term to refer to the idea that architecture and the city should be continuously able to grow, change and renew as if they were organic processes of life.<sup>7</sup> Cities were seen not as static and fixed arrays of material structure but as corresponding to metabolic processes which develop to adjust to ever-changing environments.

'Organic' was a leitmotiv not only for the Metabolists but also for their western counterparts. In his book *Towards an Organic Architecture* (1950), Bruno Zevi argues that the structure of organic architecture is 'like an organism that grows in accord with the laws of its own individual existence, with its own specific order, in harmony with its own functions and with its environment' (cited in Neder, 2008: 132). This architectural concept was followed by Walter Curt Behrendt, who was identified by Frank Lloyd Wright as the founder of organic architecture. Behrendt also used plants as a metaphor to describe his buildings (Neder, 2008: 122–33). Like their western counterparts who developed the idea of the organism as the key concept to describe the nature of urban evolution, members of the Metabolists also believed that with modern technology and design, modern architecture could change society and people's everyday lives.

### **Megastructure: The City as a Building**

One of the most important concepts was 'megastructure'. In the 1950s and the 1960s, the idea of megastructure was used by architectural movements and became an important architectural topic both inside and



outside Japan. Megastructure refers to the mega scale of the city plan which contains all the functions and systems for the city. Reyner Banham, in his book *Megastructure: Urban Futures of the Recent Past* (1976), explains that a megastructure can be seen as a single structural framework with numerous modular units which are able to extend and change when each unit needs to be renewed. More interestingly, Jonathan Barnett offers a much clearer definition of megastructure as 'the city as a building' in his book *The Elusive City: Five Centuries of Design, Ambition and Miscalculation* (1986).

The idea of megastructure has always been central to the concept of modern architecture and linked to the realization of the utopian future city.<sup>8</sup> Although a mega scale of city planning was not totally new in architectural history, the development of the idea of megastructural superblocks in the 1950s and 1960s can be found in works of 'Team X', which emerged from the International Congress of Modern Architecture (CIAM).<sup>9</sup> One of the influential members, Georges Candilis, began to design housing in Morocco in 1951 and introduced 'megaform' and 'clusters' as key concepts for the mega scale of urban development (Ragon cited in Holden, 2009).<sup>10</sup>

Archigram, one of the avant-garde architectural groups formed in the UK in 1961, also developed the 'Plug-In City Scheme'. An influential member, Peter Cook, devised a plug-in principle which combined many elements of megastructure: 'the principle of collectivity, of interchangeable units and the incorporation of rapid transport links' (Sadler, 2005: 14). The Plug-In City was designed for the accelerating flux of city life; what Cook would call the 'come-go' of Plug-In City was opposed to the orthodox urban planning with its characteristics of clean, zoned, and hierarchical separation. 'Plug-In planning promoted architecture as an *event* that could only be realized by the active involvement of its inhabitants' (Sadler, 2005: 16; emphasis in original).

Archigram is often compared to Metabolism to point out the uniformity that emerged at the time with their common futuristic and technoutopian views of architecture and optimistic imagery. However, the most significant contrast between them was their fundamental assumptions about what were the major elements and agents in 'the city'. Archigram was strongly concerned with 'plug-in' spaces for provoking new lifestyles for individual inhabitants (with the quality of everyday life). On the other hand, the Metabolists and Tange embarked on metastructural schemes for the total city system for the mass population, rather than focusing on the city's inhabitants (individuals in the city) as the key entity. With their fascination for the idea of megastructure, Tange and the Metabolists developed numerous future city plans of unprecedented scale: Kikutake's 'Tower Shaped Community' (1959) and 'The Marine City' (1963), Kurokawa's 'Helix City' (1961), Isozaki's 'City in the Air' (1961) and Tange's 'Plan for Tokyo 1960' are good examples.

Like the European avant-garde of the 1920s, their megastructure projects were not accomplished, but their techno-utopian vision of new urbanism supported by a strong belief in technological innovation was accepted in post-war Japanese society. Tange stated:

In challenging reality, we must prepare and strive for a coming era which must be characterized by a new type of technological revolution... the control and planning of the production and distribution of energy while creating productivity far surpassing that of the present... In the not too distant future the impact of a second technological revolution will change the basic nature of overall society. (cited in Jencks, 1973: 71)

Hence, the Metabolists' megastructures can be found to have some commonalities with their counterparts in the West: the fundamental premise is the strong belief that 20th-century advanced technology could open up the new paradigm of utopian human life. Some of the main characteristics include:

1. megastructures consist of a 'core' (main framework), 'jointed-together' units, capsules or cells and constructed collective units;
2. individual units, capsules or cells can be 'plugged-in' or 'clipped-on' to the core framework and 'plugged-out' from the core framework;
3. the core framework has stronger and longer sustainability than the jointed units or modules. Jointed units, such as capsules, can be replaced without major construction;
4. there is the capacity to extend and regenerate without limit; in other words, it is never complete, therefore it is continuously 'growing' and 'dying';
5. units, capsules or cells are standardized so that it is convenient for mass production and decreasing unit cost.<sup>11</sup>

The Metabolist architects tried to apply the concepts, jointed core, units and capsules to their various projects, but it was only applied metaphorically or symbolically to mega scale city plans and only used practically for some building projects. All the projects mentioned above never took place (except Kurokawa's Nakagin Capsule Tower Building), in part because of declining economic growth and the technological limitations of the time. While they were not sufficiently developed in practical schemas, these unrealized projects evoked a powerful image of the techno-utopian future city.

## The Generic City and the Utopian City

The architectural ideas the Metabolists suggested can be related to Koolhaas's notion of the generic city. In his book *S.M.L.XL*, he claims that if there is to be a 'new urbanism' it will no longer aim for



stable configuration but for the creation of enabling fields that accommodate processes that refuse to be crystallized into definitive form (1995: 969). He also elaborates that cities are uncontrollable and keep infinitely mutating. It seems that the generic city is free from existing urban values but pursues the changing, never-stable and to some extent over-pragmatic city. Thus the generic city can emerge and survive whenever it mutates. The generic city is characterized by its 'continuity' and 'autopoietic' nature, which can recall the Metabolists' architectural concept of the city as a living organism.

However, the generic city is based on Koolhaas's criticism of traditional urbanism and the need to deal with rapid urbanization in the age of 'globalization' in the 1990s. It embraces the chaotic and indeterminate along with disorder and 'the staging of uncertainty' (Koolhaas et al., 1995: 969).

It [the generic city] is easy. It does not need maintenance. If it gets too small it just expands. If it gets old it just self-destructs and renews. It is equally exciting – or unexciting – everywhere. It is 'superficial' – like a Hollywood studio lot, it can produce a new identity every Monday morning. (1995: 1250)

Throughout his statements about the generic city, Koolhaas emphasizes, on the one hand, its intensity and never-ending excitement, yet it also sounds gloomy, pessimistic and cynical. At the end of *S.M.L.XL*, Koolhaas uses the metaphor of a film theatre to capture the essence of the future city and concludes: 'The city is no longer. We can leave the theatre now'. In this sense, Koolhaas's generic city can only be explained through its opposition to the utopian future city, whereas the Metabolists' new urbanism evoked a totally affirmative utopian vision.

## The Utopian City and Its Paradox

The Metabolists had a strong conviction that the qualities of everyday life could be enhanced by the power of technology in the view of utopianism.<sup>12</sup> They believed that communal spaces in the ideal future city would permit greater respect for people's autonomy and help establish democratic relationships. Although all the members of Metabolism did not always share the same theories, ideas and schemes of urban planning, they had more or less a common vision of huge communal living spaces. The communal space was often represented as 'artificial land'. Their megastructure on 'artificial land' often contained individual living spaces.<sup>13</sup> The mass production of housing units or capsules required standardization of prefabricated components. However, the Metabolists insisted that prefabricated parts/units should not constrain the expression of the inhabitants' individuality, but rather provide

various combinations subject to the individuals' tastes, styles and necessities. They also thought that the increasing mobility and restless metabolic change of the modern city led to weaker ties between people and a particular place or land (see Lin, 2010: 91ff.).

In opposition to Frank Lloyd Wright's Broadacre City, which was based on the idea that the 'citizen of the United States would be given a minimum of one acre of land per person', the Metabolists believed that freedom from the land led to greater freedom and mobility for the people. Thus, they proclaimed that the land should be owned and organized by a public institution, not by individuals. The total city system should also be controlled and governed by a central administration.

In this sense, despite the Metabolists' basic philosophy, which embraced progressive human development with greater autonomy for people to choose their own lifestyles, what they actually wanted to create was in danger of turning into the opposite. There is a fundamental contradiction between their philosophical conception and the practical design of the city (Lin, 2010: 95). On the one hand, they promised democracy and freedom in everyday life; on the other hand, they thought that life in the future city could be governed through a centralized system.<sup>14</sup> To this end, they considered the architects to be the most influential people in the city system who should take the initiative to design not only the physical layout of the city but also control people's lives. A few selected professional architects could be seen as 'city architects'. When it comes to megastructure, a group of professionals, such as architects and city planners, should have the power to govern, because they believed that the design of physical layout and environment can determine people's everyday practices in the society in which they live.

This contradiction was not limited to the Metabolists but can be found in many utopian modernists. They all have the same contradiction, and thus the Metabolists' contradiction can be seen in continuity with classical utopianism. In some ways, it was part of the Metabolists' mission to believe in the transformation of society. Although utopias are hard to realize, they can still provide a sense of optimistic future imaginary.

This was a similar principle to that of their western counterparts, such as Le Corbusier and Lloyd Wright, who sought to create a new order for the world at large (Lin, 2010: 94). Le Corbusier's famous slogan 'Architecture or Revolution' and Wright's belief that architecture had 'an independent role in shaping social life' suggested that they believed that they were able to 'correct society on the drawing board' (Schapiro cited in Scott, 2007: 28). The Metabolists also had similar social ideals and believed that they were able to design the 'total' planning of the city in order to create a new society and therefore they would be able to become the dominant social agent and powerful creator of the new Japan.

It was clear that the Metabolists embraced technocratic principles in line with classic utopian thought. Although the Metabolists' idea of urbanism claimed to pursue the realization of people's autonomy, freedom and democratic lives, they clearly embraced technocratic principles in line with classic utopian idealism. Kenzo Tange was particularly aware of the new opportunity for architects to become powerful social engineers, and so he called himself a 'social architect' (Lin, 2010: 94).<sup>15</sup>

## The Decline of Utopian Metabolism

The Metabolist movement developed and culminated in the heyday of the early 1970s but began to decline in the changing economic climate of the mid-1970s. Given greater business competitiveness and the expansion of people's financial capacities along with the development of modern consumer culture, the projects of the Metabolists became more entangled with commercial interests. A good example was the 1970 Osaka Expo, which was supposed to be a good opportunity for the Metabolists to display their architecture, especially their image of the utopian future city.

Although their buildings (pavilions) were supposed to express their utopian idealistic city concepts, based on modern architectural technology and the drive to represent a new image of Japan, their designs turned into eye-catching billboards forcefully driven by sponsors' commercial interests. Metabolism almost lost its autonomy to express a distinctive era and become a slave to commercialism. They had to shift gradually their philosophical orientation from utopian modernism to neoliberal capitalism. Another factor was the economic recession after the oil crisis of 1973, given that the Japanese economy mainly relied on imported oil from the Middle East. The declining economic growth and the increasing instability of the architectural industry meant that many aspects of the Japanese economy had to be reconsidered and, therefore, the mega-scale of urban development became problematic. More importantly, they had a fundamental methodological and theoretical problem. The Metabolists' urban theory largely depended on mega-scale urban design and technological development along with super-utopian optimism in order to pursue the organic system of the future city. However, there was always the doubt that megastructures could be realized with limited technological progress coupled with suspicion about the optimistic utopian vision itself.

Although Isozaki was sympathetic to some Metabolist ideas such as 'the city as a process', he was always suspicious of the Metabolists' over-optimistic linear view of the continuous development of the city. For the Metabolists, urban development amounted to an organic system which could be more or less predictable and controllable. Whereas, for Isozaki, 'the city is formless and accidental' (Koolhaas and Obrist, 2011: 37) and therefore could face unpredictable catastrophic destruction. He argued

that organic metabolism in nature is always evolving and incalculable and thus could not be planned – likewise the city.

Japan has experienced military destruction and contingent events, such as the atomic bomb, several massive natural disasters such as the Kanto great earthquake in 1923 which destroyed and burned most of Tokyo and, most recently, the 2011 Fukushima tsunami and nuclear power station radiation leakage. These provide clear evidence of Isozaki's assumption that city development could be interrupted by tragic accidents and thus could not be seen as linear. Consequently, because of all sorts of reasons mentioned above, we can understand that the Metabolists' super-utopian techno-urban development could not be sustained as the leading position in Japanese architecture. If the Metabolism movement was 'a circumstantial product of a particular time and place' (Maki cited in Koolhaas and Obrist, 2011: 307), it too must necessarily come to a conclusion with the end of the era.

### **Metabolists' Utopian and Dystopian Inflections**

In order to contextualize the Metabolists' techno-utopian vision, it could be useful if we look back to the time when the Metabolists emerged, around the turn of the 1960s.<sup>16</sup> The 20th-century utopia can be seen in continuity with the 19th-century evolutionary utopian vision of society.<sup>17</sup>

The first generation of modern architects in the 'machine age', such as Le Corbusier, were inspired by industrial society: the steam engine, the automobile and the airplane, which seemed to bring humanity emancipation from labour and promise greater social equality. Later, the newer generations, such as 'Team 10' and 'Archigram', sought to express technologically-determined society in hypothetical architectural visions. The Metabolists can also be positioned in continuity with those visions which were based on trust in the independence of humanity from nature and the belief that human beings could live in an artificial world produced by advanced technology.

Yet they started to become aware that the artificial world they lived in caused negative side-effects, such as pollution and the deterioration of the ecosystem, including humans. On the one hand, science and technology rapidly progressed: IBM's first commercial scientific computer, IBM 701, was announced to the public in 1952; the double helix structure of DNA was discovered in 1953; the national aeronautics and space administration in the United States was created in 1958. On the other hand, human-made environments started to degenerate and threaten human life; the Vietnam War started in 1962, raising criticism about its brutal technologically-advanced weapons; Minamata disease in Japan was first diagnosed in 1956 and was one of the earliest and most influential incidents to make Japanese people aware of the risks of modern life.

Accordingly, there has been a gradual shift away from naïve techno-optimism since the 1960s. The demystification of scientific rationality gave rise to risk consciousness. In his book *Risk Society*, Beck claims that civilization brought about threats which we find when we see ourselves ‘exposed to radiation’ (e.g. the Fukushima nuclear power station incident), or ingesting ‘toxic levels’ (e.g. Minamata disease), and in the anxieties of a ‘nuclear holocaust’ (e.g. the Hiroshima atomic bomb) (Beck, 1992: 72). His account fits surprisingly well both the historical and current Japanese social contexts.<sup>18</sup>

An invisible world becomes rendered visible, a dangerous world which closely resonates with a dystopian vision of the future, and we can only perceive the world we live in largely through the critical risk consciousness of a dystopian culture. In Japanese history, people had repeatedly encountered major disasters and calamities. When the Kanto great earthquake occurred in 1923, Tange was 10 years old (and his mentor, Kunio Maekawa, was 18 years old – he also faced the bombing of Tokyo in 1945 and was terrified but at the same time delighted by the potential to reconstruct Tokyo). When the world’s first (Hiroshima) and second (Nagasaki) atom bombs exploded in 1945, Arata Isozaki was 14 years old and the youngest Metabolist, Kisho Kurokawa, was 11 years old.<sup>19</sup> They were undoubtedly shocked and traumatized by those unprecedented events. The profound tragedies they experienced would reflect their perception of the future world. They could not believe in an eternal stable society. For them, a future world could be characterized more by the precognition of catastrophe than expectations of utopia.

Yet the need for utopia can always be found in the middle of dystopian times as utopia offers ‘compensatory escapism’ (Levitas, 1982: 53) or the moratorium of the future status quo. If the Metabolists were fatalistic they would need a utopia, because establishing continuity from the (catastrophic) present to the hopeful future was so challenging. The more catastrophic the society in which you live, the more you need a utopian fantasy. Hence, it can be said that the Metabolists’ techno-utopianism emerged amidst the dystopian vision prominent in Japanese society in the 1960s.

## Conclusion

As has been argued, Metabolism can be seen as a distinct modern architectural movement which entailed a paradigm shift in architectural aesthetics in relation to not only form and design but also architectural concepts and philosophy in the context of 1960s Japan. In the wake of severe war-time destruction, Metabolism had the ambition to create a new Japanese image and national identity by representing the futuristic utopian modern city. Although their primary intention failed, they eventually created Japanese techno-utopian aesthetics in their architectural

philosophy. In both backstage and frontstage areas of the movement, Kenso Tange was arguably the most influential mentor for the Metabolists as the leading Japanese architect. He was devoted to reconstructing the national image through his architectural vocabulary and practice in the decades before and after the war. Given the new social environment, he embraced technological progress, along with the megastructure city planning supposed to help re-create a new image of post-war Japan. The Metabolists were strongly inspired by Tange's architectural practices, theoretical articulation of city planning and professional identity as a social architect.

Clearly, the Metabolists were influenced not only by the global modern architectural movements but also by dramatic technological advances and the progress of science. Therefore their concepts were inspired by genetics, biology, space technology, computer science, communication technology and modern art in the 20th century. The term Metabolism referred to a biological world of metamorphosis and transformation (Pernice, 2007: 358–9). The city was seen as a living organism, growing in symbiosis with its own functions and environments. This suggests an appreciation of the mutability of nature and the recognition that the practice of building should be attuned to such natural processes.<sup>20</sup>

The Metabolists believed that the city is a process and changeable, thus it is formless and 'non-plan' (Hughes and Sadler, 2000). However, architects paradoxically need to make a plan for the city. Although they embraced people's autonomy and freedom in the future society, their major concept, megastructure, was accompanied by the idea of a central administrative system where professional architects could play a key role in designing and controlling urban life. Here is the contradiction. This was the idea that 'a single creator can build a society wherein a huge number of people will live' (Otaka cited in Koolhaas and Obrist, 2011: 35). Individuals are required to adapt to and live under the technocrat society.

This resonates with Tange's philosophy of the role of the architect. He sought to establish the social role of architects and anticipated that modern architecture should play a key role in the transformation of the city and city habits. Thus they should thrive in creating a new image for Japan. The idea of the social role of architects was an essential belief of the utopian modernists in both the West and Japan. In order to re-create a new image of Japan, it was impossible for the Metabolists to separate the city from its historical past, and for them it was important that the city was seen as a vehicle for embodying memories.

The generic city, on the other hand, is 'the city without history' (Koolhaas et al., 1995: 1250). This was Koolhaas's response to a paradox in contemporary urbanism. 'The commitment to the historical concentric form of the [European] city leads to the search to both preserve the authentic city of the historical inner cities and the drive to constantly modernize them to make sure they also keep their role as centres of



society' (Hajer, 1999: 140). For him, 'Not proximity but connectivity, not history but adaptations are the key variables' (p. 141). The generic city as a global contemporary city no longer evokes homogeneous identity but can be multiple. The Metabolists' urbanism sought to create Japaneseness through historical memories.

In terms of the ambition of creating a national image and the image of a future Japan, the mega-city plan was the most important productive avenue explored by the Metabolist movement. However, they over-emphasized the city 'megastructure' as entailing a new paradigm of urbanism. Tange's 'Tokyo City Plan 1960', for instance, was the project which attempted to create 'a total system of the city' for populations of ten million or more. His perception of the mega scale of the city was inspired by modern architects in the West. He became increasingly conscious of the issue of scale through visiting large-scale European architecture and was inspired by Le Corbusier's *Unite d'Habitation* in Marseille in 1951. The huge scale of urban architecture against the human fascinated him (Tange, 2011 [1984]: 218). Consequently the emphasis on mass, the flow of people and cars,<sup>21</sup> brought the danger that the sense of individuality and autonomy could be erased; it made it easier to embrace the idea of meritocracy, managerialism and technocracy.<sup>22</sup> As mentioned above, Tange and the Metabolists invoked a biological analogy and advocated a city in which 'the natural force of the city continues to renew itself like an organism'. However, this natural force comes from living entities – individuals and existing nature. As long as people live in the city, the city keeps producing 'happenings', 'events', 'stories', 'meanings', and 'emotions' which can never be destroyed by the mechanical force.<sup>23</sup>

The increasing power of consumerism and the economic recession badly impacted on the further development of Metabolism. This could be seen as one of the most serious critical defects of Metabolism. More significantly, the Metabolists tended to ignore the fact that the city is always full of performers. Their city was modelled on biology but focused on the buildings, city structure and system and, therefore, neglected the living organic entities, the human beings, which are not passive but active and living inside the city. For the Metabolists, individuals as performers in the city amounted to 'invisible entities'.<sup>24</sup> In this respect, the idea of designing 'human spaces' in the form of a set of capsules or 'cells' in order to integrate humans into the mega-systems was part of the ambitious intention of the Metabolists to change social life, to influence human habitus and to change everyday lifestyles (the classic idea that humans should follow structure and system).

### **Coda: New Architectural Climate in Contemporary Japan**

As a postscript, it can be said that the new generation of Japanese architects, contrary to the Metabolists, are no longer involved in

creating a mega-scale project in the city, but they work on individual buildings which amount to 'sheltered enclaves where their clients could hide from hostile environments in the city' (Lin, 2010: 229).

The new generation of Japanese architects has re-discovered architectural aesthetics in the space inhabited by living organic entities – individuals – as the major actors. If urban life is constituted and constructed by unexpected, unanticipated and incalculable possibilities and risks and thus is always changing and never stable, the individuals in urban life have to negotiate and interchange with their surroundings and need to continuously be recreating and managing 'the horizon of what we consider to be life' (see AbdouMalik, 2011: 355). If this is the case, new urbanism developments cannot be easily contextualized, theorized and hypothesized. This suggests that 'people and materials that operate within any space actively or potentially can step in and out of different senses of what is required and possible, different performances and framing devices, different vertically layered strata of articulation and different ways of paying attention and of being implicated in what is going on' (AbdouMalik, 2011: 356).

It is important, then, to see that megacities are 'living' and 'evolving' complex and fluid intensities which are transformed by how individuals are performing. Here, it is clear that the focus has shifted from longing for the centralization of the city system and megastructure to hoping to realize the individualization of living space for urban individuals.<sup>25</sup>

Unlike the Metabolists, today's Japanese architects no longer consider the speculative future city tinged by romanticism but seek realizable 'sheltered' living spaces for individuals. They no longer seek an evolutionary change of society; rather, they long for a self-controlled sanctuary from the hostile and risky outside world. Yet a self-controlled sanctuary doesn't mean a self-imposed quarantine but a place which can be sustained by restless interactive relationships with the outside world. Here, one of the leading new generation of contemporary architects, Kengo Kuma, emphasizes relationships between human beings and all the entities in environments through architectural forms. For him, the relationalities with the outside world provide the key concept.

Emphasizing the mutual relationship between architecture and the environment is also a concept found in the early stage of Koolhaas's architectural theory. In his interview about the 'Berlin Wall as Architecture' (Obrist, 2003: 508), Koolhaas explains that he tried to see the Berlin Wall as architecture to understand the real power of architecture. He found the meanings of the Wall could be determined by both political and physical environments. He observed 'how West Berlin was actually imprisoned by the Wall, yet paradoxically West Berlin was called

“free” and that the much larger area beyond the Wall was not considered free’. He also found that:

... the Wall was not really a single object but a system that consisted partly of things that were destroyed on the site of the Wall, sections of buildings that were still standing and absorbed or incorporated into the Wall, and additional walls, some really massive and modern, others more ephemeral, all together contributing to an enormous zone. That was one of the most exciting things: it was one wall that always assumed a different condition. ... In permanent transformation, it was also very contextual, because on each side it had a different character; it would adjust itself to different circumstances.

He emphasizes, then, that architecture is not just contextualized by different environments but that architecture itself contextualizes environments. In this permanently changing inter-rationality, architecture is not just a transforming entity – it becomes a ‘*phenomenon*’ (Kuma, 2009). Continuing this line of thought, Kuma insists that ‘the architect must consider to whom, when and how the building will appear, and those calculations must include an idea of to whom, when and how the building will be invisible’ (Kuma, 2009: 49).

To understand this complex relationship and focus on much broader sensory modalities which include not only geopolitical conditions but also biological natural environments, he proposes ‘a new organic architecture’ based on a new view of organisms. He argues that ‘an organism is not autonomous but instead by assimilating and excreting external matter at amazing speed escapes an increase in entropy and manages to live on’ (Kuma, 2009: 57–8). For him, like an organism, ‘architecture cannot be autonomous and can only exist as relationships’. He thinks that ‘the overwhelmingly more powerful environment determines whether we live or die’ (Kuma, 2009: 60).

Nevertheless, the environment today is clearly deteriorating and thus we feel more dystopian sensitivities about our future life. His starting point is not trying to control or change existing environments, but to find the best way to harmonize with the present world we are facing. Whereas the Metabolists concentrated on the total city system as a self-efficient system and tended to ignore what is outside the city system, Kuma’s scope provides a much broader framework for understanding the inter-relationalities between culture/human beings and nature/environments through not aggressive but temperate architectural forms.

Kuma’s architectural philosophy, which is to some extent shared by contemporary Japanese architects, had not completely crystalized until the apocalyptic disaster of the Tohoku earthquake and tsunami and the

accompanying Fukushima Daiichi Nuclear Power Station incident, still an ongoing serious crisis. This disaster meant that over 100,000 people lost their homes and were forced to live in public shelters (relief centres) without privacy and with limited space. Hastily built temporary housing can only provide 'empty shells' (Turnbull (ed.) 2012: 135).

Toyo Ito expressed these sentiments after visiting the affected areas and witnessing the devastating conditions (Koolhaas and Obrist, 2011: 697). One outcome was his proposal 'Home for All', which was a call for design submissions for 'communal gathering spaces they can build in the disaster areas in between the relief centres and temporary housing' (Ito et al., 2012: 135) in summer 2011. This was a joint proposal with Riken Yamamoto, Hiroshi Naito, Kazuko Sejima and Kengo Kuma. What they initially found in the affected area was that 'people try to smile and make do, using empty boxes for dining tables, staging amateur concerts in cramped quarters in extreme circumstances' (Ito et al., 2012: 135). The group of architects stated:

What we see here are the very origins of architecture, the minimal shaping of communal spaces. An architect is someone who can make such places for meagre meals show a little more humanity, make them a little more beautiful, a little more comfortable.

Here they no longer pursue the creation of megacities but are dedicated to creating simple communal spaces where individuals can communicate, perform and carry out their everyday practices. Ito suggests that 'we [architects] need to start by questioning the way we relate to nature [environments]' and questions again 'the people or community which we [architects] always argue for in our architecture – aren't they just an abstracted scheme?' (Koolhaas and Obrist, 2011: 697).

Architects, then, can seek to reassert the power of people as significant active agents who can bring vitality and re-vitalized space – both for architecture and for cities. As long as individuals, as living entities, in the city do not lose their autonomy and keep performing across information and material networks in everyday transactions, the city won't lose its inherent feature, which is to restlessly produce 'events', 'happenings', 'memories' and 'histories'. As long as architects continuously endeavour to better understand both mental and spatial environments for human lives in urban landscapes, they can potentially create a new paradigm of architectural concepts and an image of the future city.

The Tohoku earthquake and tsunami and the Fukushima Daiichi Nuclear Power Station incident clearly have brought a new urgency to the question of how we can better integrate human imperatives with those of nature without destroying our fragile ecological system. The question is how to find a better paradigm to facilitate a dynamic shift from 20th-century politics of science to the recognition of natural

environments as not only limited and endangered resources, but also uncontrollable assets for human technology. This raises the question of ‘how can we modernize modernization?’ (Beck, 1992), a question which we are still far from finding a way to adequately answer. As long as human technologies, such as nuclear power, continue to produce unforeseen events which can escalate beyond our control, the sense of living in a dystopian time would be more realistic.

## Notes

1. The official report from the Reconstruction Agency on 12 June 2014.
2. *Kahoku Shinpo* [newspaper]. Available at: [http://www.kahoku.co.jp/tohokunews/201403/20140311\\_73016.html](http://www.kahoku.co.jp/tohokunews/201403/20140311_73016.html) (accessed 6 June 2014).
3. The official report from National Police Agency on 10 June 2014.
4. He also attended the last CIAM in Otterlo, the Netherlands, in 1959.
5. In the aftermath of the Second World War, leading western architects came to Japan more frequently: Walter Gropius in 1953 to work on the post-war housing crises; Le Corbusier in 1955 to work for the National Museum of Western Arts and Konrad Wachsmann in 1956 to give a series of seminars at the Tokyo Institute of Technology (Lin, 2010: 16). Konrad Wachsmann and Walter Gropius were well-known as the inventors of the Package House (General Panel System) in the 1940s. Wachsmann’s innovative idea of prefab housing was the ‘wedge connector’, which is a cast-steel mechanism built into the wood frames of the modular three-foot-four-inch plywood panels. The connector was ‘the only means of holding the parts of the house together without the use of nails, screws, bolts or glue’ but only a hammer. His design for mobile aircraft hangars for the US Air Force was also a remarkable architectural invention during the Second World War and the 1950s. It was a massive space which was described as a ‘tetrahedron-octahedron structure’ that can be easily combined and could be collapsed and shipped anywhere for speedy construction. He developed the design and construction of the wedge connector and interchangeable building components, both of which were required in war-time and post-war social reconstruction. A number of students were selected (Noboru Kawazoe, Kenji Ekuan and Arata Isozaki) to attend the various seminars. They became the future Metabolists, and learned the new design of prefabrication and the advanced technology of the space frame from Wachsmann. They were strongly inspired by Wachsmann’s ideas and fed them into the fundamental ideas of Metabolism.
6. They were not authorized to do so, but the ambitious Kurokawa and Awazu went ahead and distributed their pamphlet at the conference.
7. This was a time of major new discoveries and innovative research projects in biology and biological engineering. It is clear that Metabolism’s concept formation was strongly inspired by many of the breakthroughs in biology, the life sciences and the medical sciences. One of the major breakthroughs in molecular biology was the discovery of the double helix structure of DNA by James D. Watson and Francis Crick of Cambridge University in 1953. One of the Metabolists, Kisho Kurokawa, was inspired by this sensational discovery and applied this concept for the ‘Helix City Plan for Tokyo 1961’

(which was published in *L'Architecture d'aujourd'hui* in 1962). He used the model of the spiral shape of the DNA helix to plan the future city and predicted it had the same function as the organic system which duplicates itself like DNA. For him, 'the spiral design of the towers was explicitly opposed to the Cartesian model of a priori master-mass plan which ... could not account for the natural curvilinear evolution of environments' (Parisi, 2009: 348).

8. The original ideas of megastructure can be traced back to the city project for Paris, Henry-Jules Borie's Aerodomes (1865), which integrated multi-level urban buildings that include transportation infrastructure, and Arturo Soria y Mata's project (1882) for a continuous linear industrial city intended to span between Cadiz and St Petersburg (Holden, 2009: 7).
9. Team X sought a different theoretical framework from the previous generation. They were also critical about the functionalist's urban plan and CIAM's bureaucratic administration.
10. Through their lectures and publications, the members of Team X created and diffused their ideas of structuralism (Aldo van Eyck and Jacob Bakema) and brutalism (Alison and Peter Smithson).
11. Kikutake's Tower Shaped Community and The Marine City presented the mega tower buildings which were constructed via several meters tall concrete cylinders and dwellings and other accommodation attached to the core cylinders. He proposed 'vertical land' (on the ground and beneath the sea). Part of The Marine City plan was accomplished as Aquapolis for the International Ocean Expo, Okinawa, Japan, 1975.

Kurokawa's 'Helix City' (1961) envisioned a module system which was a reflection of the discovery of the structure of DNA. This was constructed with gigantic scale spiral towers (each with a capacity for 10,000 people) which were joined by an infrastructure of bridges. His 'Nakagin Capsule Tower Building' was not a city plan but epitomized well Metabolism's fundamental concept. According to their different 'metabolic cycles', Kurokawa divided the Nakagin Building into two basic components: the mega-structure (two reinforced concrete shafts connected with bridged units every three storeys) with the total set of capsules providing 144 individual living units. They were designed with different lifespans: the main shafts would last 60 years, while the capsules would be up for replacement in 25 years.

Isozaki's 'City in the Air' (1961) proposed a 'forest-like' city plan which applied the 'joint core system'. Each 'tree-like' mega scale 'vertical core provides the path for public transport with "branches" (lateral paths of movement) emanating from this core which in turn sustain "leaves" (the housing units), which intertwine and link-up to generate a network in the air' (Isozaki, 2001: 74). The multiplication of treelike structures produces finally a 'forest'.

Tange's 'Plan for Tokyo 1960' was designed for the rapidly increasing industrial and urban sprawl, to provide a new urban proposal for the city's future. In this plan, the most striking idea was to fill up Tokyo Bay to create artificial land which was intended to cross the bay with a mega-scale linear expansion of interlocking communication routes. This was based on the idea of the linear city with a tree-like structure.



12. If we think about the social context in which we live, utopianism seems a completely dated and inappropriate concept. However, a number of theorists believed that utopia can act as a catalyst for social change and that we cannot live meaningful lives without utopias. Karl Mannheim's 'Ideology and Utopia' (1952), for example, makes this argument against 'the relinquishment of utopias' (Mannheim cited in Mazlish, 2003: 44). This was not a pragmatic ideal but more an emphasis on 'spiritual significance' (Turner, 1992: 187) and hope. What the Metabolists envisaged was the hope of a future city which embodied the idea of democracy, egalitarianism, classlessness and the freedom of the individual.
13. The capacity for units of individual living spaces ranged from 2000 in Kurokawa's 'Agricultural City' to 500,000 in Kikutake's 'Ocean City' (Lin, 2010: 74).
14. Recent concerns about the issues of democracy and freedom in contemporary urban life have been exacerbated in the debates about the implementation of advanced computer informational systems, such as the use of 'citizen sensors' (Gabrys, 2014), to improve resource efficiencies, sustainable environments and secure everyday practices. Ubiquitous computing systems potentially make it possible for citizens to input their level of energy consumption in various everyday activities to the central database. On the one hand, citizen participation in urban sustainability schemas can create the chance for greater public intervention in the governance of cities. Yet on the other hand it can also open the door to greater surveillance, so as to further by stealth governance of citizens' urban life. In this respect, it raises the question of how far inhabitants as citizens can perform democratically.
15. However, his main social responsibility to be a social architect did not go beyond the role of an agent of the government until he announced the 'Plan for Tokyo 1960'. The plan first appeared on Japan's national television network NHK as a special TV programme, and its ideas were not published in any architectural journal but instead in the popular news journal *Shukan Asahi* [Asahi Weekly]. As a result of this, the plan received instant public attention. This gesture suggested that his plan was not commissioned by the government and therefore it was his own proposal of a future Tokyo (Lin, 2010: 144–6). The plan was eventually taken up by the Japanese Minister of Transportation as a potential national project. Although the plan was never realized, at this point Tange became an autonomous social reformer or social engineer, not just an agent.
16. If a utopia is 'a circumstantial product' of the time, like the notion of 'modern', utopias could be always emerging from surrounding social environments at any time and place. Thus each era and society has its own utopian idealism. Levitas states: 'If you look at the history of the English utopia, the kind of utopia prevalent in the 19th century forms a special case, and that, by extension, one can see that utopias do indeed exist in the present time, they are merely different in content and in social role, because they are predicated on different assumptions about social development, time and power' (Levitas, 1982: 54).
17. 'The utopias of the 19th century were predicated on a view of social development that was evolutionary – i.e. continuous and progressive, and on the assumption of human control over that evolution' (Levitas, 1982: 54).

18. Beck states that 'dangerous, hostile substances lie concealed behind the harmless facades. Everything must be viewed with a double gaze, and only be correctly understood and judged through this doubling. The world of the visible must be investigated, relativized and evaluated with respect to a second reality, only existent in thought and yet concealed in the world. The standards for evaluation lie only in the second, not in the visible world' (Beck, 1992: 72).
19. Kurokawa developed the concept of impermanence, derived from Shintoism and also Buddhism. He believed that the concept of impermanence could be used to apply the idea that the city and architecture are continuously changing and growing. For him, 'everything we see is impermanent. Whole cities can vanish in a day of warfare. It's this idea that the Japanese believe in, not the outward form. It's the philosophy' (Koolhaas and Obrist, 2011: 385).
20. Metabolism can be contrasted to Koolhaas's 'generic city'. Koolhaas saw the city as 'liberated from the captivity of centre, from the straitjacket of identity'. A city in which 'if it gets small it just expands. If it gets old it just self-destructs and renews' (Koolhaas et al., 1995: 1249–50). This idea of self-maintenance by 'mutation' resonates with the Metabolists' organic city.
21. He argued that the mega-city, like Tokyo, urgently needed to change its old structure and system in order to solve the problem of rapid expansion along with a radically growing population. In this view, he explained that the transportation system was particularly significant for dealing with the increasing mobility. Thus, mobility can determine the structure of the city.
22. Over 60 years after the emergence of Metabolism, there is a continuous strain of this idea in the present debate about the contemporary city plan. With the growing attention given computational information programmes, especially digital tracking systems, a new type of urban planning concerned with the sustainability of the city has become a key issue for contemporary society. 'All urban actors, at whatever scale – from the pedestrian to the megacity itself – respond to embedded regularities they help to materialize and normalize, in cognitive, affective and rhythmic ways' (Crandall, 2010: 71).
23. This could resonate with Archigram's 'Living City' which sought to not only liberate people in the city by celebrating technological innovation but also empower the inhabitants to create their own way of life. Archigram focused more on the inhabitants as individuals who were incalculable living entities, and acknowledged that the individuals were significant active entities who could contribute to creating a 'Living City', which appreciated the immediacy and feeling for urban life. 'The future would not be the architect's total design, but a collaboration between architect and inhabitants' (Sadler, 2005: 65). In other words, for them, the city was not seen as architecture with hardware, but as 'the individuals, "bare and naked man" with his complex of personal beliefs and motives' (Sadler, 2005: 65).
24. Unlike the other Metabolists, such as Kurokawa and Kikutake, Fumihiko Maki rarely proposed megastructures and was primarily interested in urbanism, not technology. He invented 'group-form', which was inspired by seeing cities and villages in North Africa, India, the Middle East and Europe. He learnt 'a variety of vernacular human settlement and was particularly impressed by their repetitive patterns and the intricate order with

- the grouping of building' (Lin, 2010: 32). Through this trip, he became much concerned with individual units, which are largely subject to vernacular human activities, and focused on a human-oriented vision of city planning.
25. AbdouMaliq also emphasizes the uncertainty of urbanism, which is always in process and progress. He remarks: 'The exigencies of dwelling require a constant process of converting what is accessible into the tools of new possibilities and attention', adding that 'The distance between reiteration and change is always uncertain, and long histories of repetition need not constitute likely guarantees' (2013: 245).

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