Asian Architectural Actions (AAA)
for a sustainable future

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1. The later 20th century

Architecture develops alongside society and reflects contemporary thought. In Japan for example, the years since the end of World War II have been ones of dramatic change, beginning with a period of postwar rehabilitation, mainly in war-damaged cities around the nation. Within the nation itself there have been landmark events such as Tokyo's hosting of the 1964 Olympic Games and the launch of Shinkansen ("Bullet Train") services in the same year, amid a high growth economy throughout the 1960s. The World Exposition was held in Osaka in 1970, but the decade also saw "oil shocks" as the oil price surged, as well as the growth of Japan's asset inflated "bubble economy," which finally burst at the end of 1980s. A further blow came with the Great Hanshin-Awaji Earthquake in 1995, which killed more than six thousand people in Kobe and its surroundings.

In the field of environmental protection, the 1992 Earth Summit in Rio de Janeiro had an important influence with its formulation of the United Nations Framework Convention on Climate Change. And in Kyoto in 1997, the Conference of the Parties to the convention concluded the "Kyoto Protocol," whose implementation will make a start on tackling this vital issue. Each of these events --national and global-- has directly or indirectly affected architecture, in terms of its ideas, styles, techniques and building operation. In turn, almost every social activity relies on the built environment and the skills of the architect, and buildings can play an important role as symbols of a community and its view of the world.

The Japanese postwar period can be characterized as one of expanding economic activity based on mass production, mass consumption and mass disposal. This was made possible by technological innovations and the modernization of industry and distribution systems, alongside the westernization of lifestyles. As society has changed, so the practice of architecture has evolved as well. The quality of housing has been dramatically improved, based on the achievement of world-class standards in architectural design and construction technologies. The country has enjoyed the enormous benefits of its postwar development, but the negative aspects, including the environmental impact, have been largely ignored.

2. What do we mean by the environment?

The word "environment" can have various meanings, depending on the viewpoint and status of the speaker. A dictionary defines "environment" as "everything that surrounds Earth's creatures and affects them in some way." Taking a person's home as an example, the building materials, lighting, heating and furniture can be considered as the first environmental layer of that person's daily life. Other residents in the home, who influence each other both physically and mentally, are also factors in that environment. Beyond the home, there is the natural environment, consisting of sunlight and heat, the weather, wind, plants and animals, as well as the social environment of the human community. Together, these natural and social surroundings ripple out from the street, to the neighborhood, to the town --forming a regional environment that, in turn, is connected to the global environment through the worldwide flow of resources and information. In other words, we can be seen as living within a series of micro-, mezzo- and macro-environments, extending from our homes to the world as a whole.

The process of globalization has allowed each one of us to recognize, for example, that our consumption of fuel in the home has an environmental impact on regions that may be very far away, and ultimately, an impact on the global environment as a whole. With the development of information and communication technology (ICT), people around the world have simultaneous access to information about these issues through television broadcasts and the Internet, and the data can be shown in a visual form that makes it possible for everybody to easily understand the network of relationships. Against this background, there is growing interest in global environmental issues.

Most of the environmental problems in contemporary society have their origin in the Industrial Revolution that began in 18th century Britain, where, amid air pollution and the lack of public hygiene measures, very poor living conditions were created due to the rapid growth of urban populations. Although at first restricted to certain areas of industrialization, these environmental problems soon became common in and around big cities across the world. Now that industrial production and distribution are quickly becoming globalized, environmental problems that have a worldwide impact are being experienced, including global warming, destruction of the ozone layer and deforestation. Consequently, humans face the dilemma that, while forming the basis for our daily lives, our economic activities are, at the same time, often undermining the very foundations of human life.

3. Reducing our environmental impact while improving the quality of life

People interact economically in a variety of ways: making and distributing goods, creating and transmitting information, and providing others with services. These activities consume energy and natural resources, regardless of the type of industry. As goods and services are bought and sold, with sellers and buyers frequently exchanging roles, market economies are created on both local and global levels.

In Japan, we have seldom questioned the belief that continuing economic growth is the quickest way to improve the quality of our lives, and we have mostly enjoyed the benefits of such growth up to now. However, the hidden foundation of that approach is becoming clearer as globalization speeds ahead and the distribution of information advances. We are becoming more and more aware that the very basis of life is our local and global environment, which depends on the miraculous and delicate balance of a rhythmic circulatory system, and our success is only possible within the limited capacity of the environment.

This idea of "environmental capacity" highlights the need to recognize the contradiction in human destiny that means we threaten the basis of our own and other lives while aiming to enhance the quality of life. Anyone who has ever seen an illegal dumping site, or wherever our garbage and waste finally ends up, has seen evidence of this dilemma. In the latter half of the 20th century, most people failed to notice the contradiction, or pretended not to be aware of it. However, a survival instinct to face up to the issue is leading to a paradigm shift in views worldwide. And the key to resolving the dilemma is to understand the interrelationships between nature and human society, within a local and a global context.

Humans will always want to enhance their quality of life, and inevitably, this will put pressure on the environment. The most important task for architecture, as well as other human endeavors, is to find ways to bring an end to that dichotomy. In other words, we must put into practice the understanding that achieving better lifestyles means minimizing the impact on the world around us.

4. The UIA Work Programme “Architecture for a Sustainable Future”

Given the above, we acknowledge that sustainability presents great challenges for our profession. But it also presents us with opportunities to play a dynamic and constructive role in the future development of our own societies. Indeed, we find ourselves living and working at one of those critical times in the history of the world where the future of the human enterprise is being decided. These are critical times. Our role as architects and/or

urban designers helping society to secure its future may well be decisive. In a world that is already straining its life supporting capacities to the limit, how we shape and organise space in support of sustainable living lies at the very heart of well-being and even our survival.

More than a decade has passed since “the Declaration of Interdependence for a Sustainable Future (cf. Ref.1)” was launched at the UIA/AIA World Congress of Architects in Chicago (1993), a year after the Earth Summit in Rio de Janeiro (1992). Accordingly, architects are already making important contributions to the resolution of these great issues. The purpose of the UIA Working Group, called initially “Architecture of the Future (AOF)” and currently “Architecture for a Sustainable Future (ASF),” is to help with this process and to ensure that architects have the capacity and are provided with the opportunity to grasp and fulfil their rightful role, in cooperation with the relevant stakeholders, including clients and users.

The initial Working Group consisted of architects with expertise and practical experience of sustainability issues from all over the world. Just as important, however, is their willingness to make all of this available to their fellow professionals. Major objectives of the related activities are;

1) *to assist the architectural profession within the region and elsewhere to contribute effectively to the challenge of sustainability at the local and global scale,*
2) *to facilitate access to information and continuing professional development on sustainability issues world-wide,*
3) *to make the expertise of the architecture profession available to governments and the international community through the United Nations and its agencies, and, other international organisations,*
4) *to provide information and advice on sustainability issues to the other elements of the UIA, and,*
5) *to liaise with other non-governmental organisations locally and globally.*

It can be seen that in each case we have set ourselves practical challenges of tasks to be done within a time framework that is already established by other events. Parts of these tasks were completed by the last UIA Congress and Assembly in Turin in 2008, and some of these are identified as being in preparation for other major world events to be held in the coming years including UIA2011Tokyo (September 25-October 01, 2011). The principle theme of the congress is “Design 2050.”

In December 2009, at the occasion of COP15 held in Copenhagen, UIA released the Copenhagen Declaration “Sustainable by Design” (cf. Ref.2), which was the outcome of all the related initiatives of UIA to date.

5. The era of Asia

Looking at the recent trend of the global economy, there is no doubt that Asia is becoming a powerful engine of it in spite of one of the largest financial crises around the world since 80 years, triggered by the “Lehman Shock” in September 2008. The amount of construction industry output in Asia for example has already exceeded 1.4 trillion US$, equivalent to 30% of the global amount in 2007.

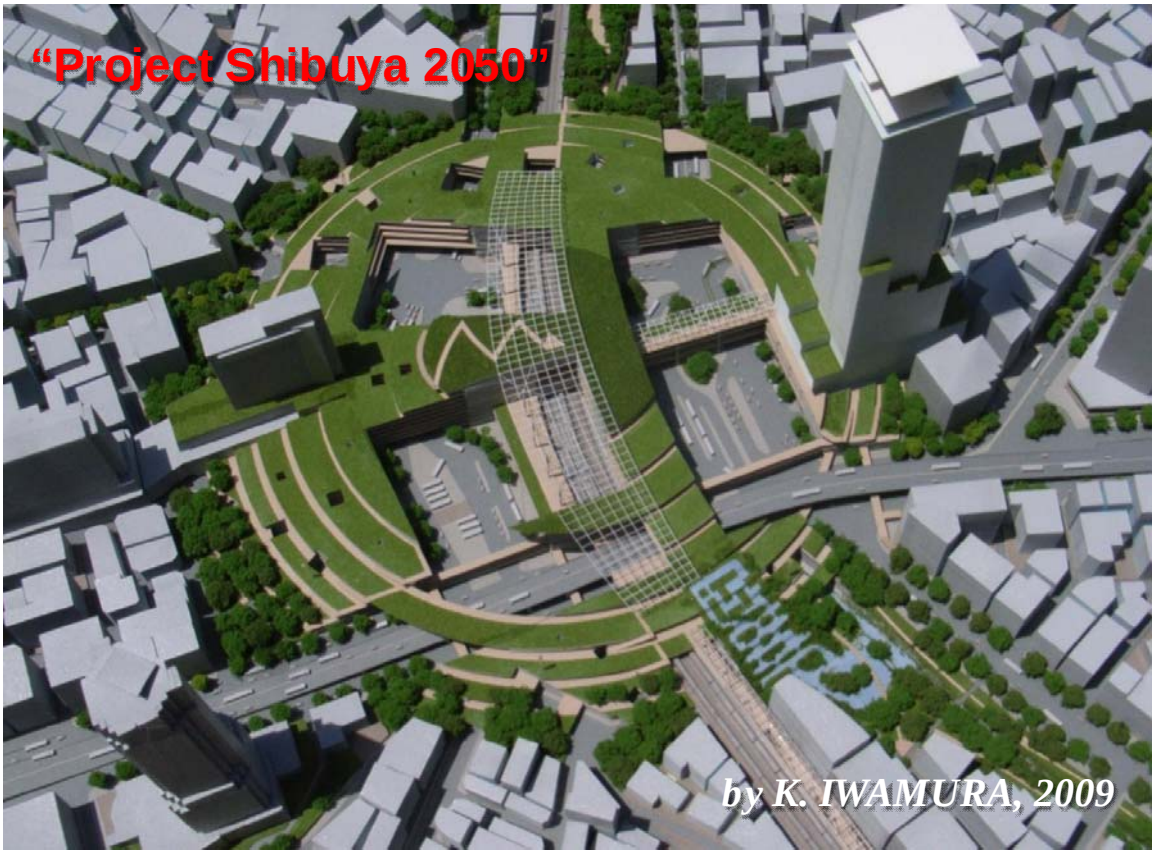
Parallel to this, on the other hand, big concerns about climate change and risk management regarding energy and resource supply arose in Asia and became more and more serious issues due to the rapid increase of energy and resource consumption. This was created by the natural eagerness of improving the quality of life, which is one of the fundamental motives of the people to live on. The history of major western countries since the industrial revolution reveals this.

In any case, it is now Asia’s turn to play a major role in upcoming years to take the lead of global economy.

6. Conclusions: Asian Architectural Actions for a Sustainable Future

Current movements towards a sustainable future are focused more or less on the efforts in view of carbon neutralisation of buildings and cities/regions to counteract global warming. In Japan, a clear vision for the year 2050 was drawn up, just before the COP15, by the seventeen building-related organizations under the title of "Vision 2050 for Carbon-Neutralization (cf. Ref.3)." This shall be followed by its action plan to make it effective in collaboration with Asian and other countries sharing common locality but opposing to each other in certain aspects. I do believe that it is the time not to discuss any more but to take collaborative actions for a sustainable future of our children.

Therefore, region-specific "Asian Architectural Actions (AAA) for a Sustainable Future" are strongly longed for.



An imaginary project for the Shibuya Station District of 2050 by the author, 2009

References:

Ref.1: Declaration of Interdependence for a Sustainable Future, AIA/UIA, 1993

Ref.2: Copenhagen Declaration "Sustainable by Design," UIA, 2009

Ref.3: Vision2050: Building-related Measures to Counteract Global Warming, AIJ, 2009

Ref. 1

Declaration of Interdependence for a Sustainable Future

UIA/AIA World Congress of Architects
Chicago, 18-21 June 1993

In recognition that:
A sustainable society restores, preserves, and enhances nature and culture for the benefit of all life, present and future; a diverse and healthy environment is intrinsically valuable and essential to a healthy society; today's society is seriously degrading the environment and is not sustainable;

We are ecologically interdependent with the whole natural environment; we are socially, culturally, and economically interdependent with all of humanity; sustainability, in the context of this interdependence, requires partnership, equity, and balance among all parties;

Buildings and the built environment play a major role in the human impact on the natural environment and on the quality of life; sustainable design integrates consideration of resource and energy efficiency, healthy buildings and materials, ecologically and socially sensitive land-use, and an aesthetic sensitivity that inspires, affirms, and ennobles; sustainable design can significantly reduce adverse human impacts on the natural environment while simultaneously improving quality of life and economic well being;

We commit ourselves,
as members of the world's architectural and building-design professions, individually and through our professional organizations, to:

• Place environmental and social sustainability at the core of our practices and professional responsibilities

• Develop and continually improve practices, procedures, products, curricula, services, and standards that will enable the implementation of sustainable design

• Educate our fellow professionals, the building industry, clients, students, and the general public about the critical importance and substantial opportunities of sustainable design

• Establish policies, regulations, and practices in government and business that ensure sustainable design becomes normal practice

• Bring all existing and future elements of the built environment - in their design, production, use, and eventual reuse – up to sustainable design standards.

The Chicago Declaration was signed by:

Susan Maxman, *President of the American Institute of Architects as host of the Congress,*

and,

Olufemi Majekodunmi, *President of the International Union of Architects 1990-1993*

Ref. 2

COPENHAGEN DECLARATION

SUSTAINABLE BY DESIGN

December 2009

INTERNATIONAL UNION OF ARCHITECTS (UIA)

The International Union of Architects is committed to making our world **Sustainable by Design**. The Declaration of Interdependence for a Sustainable Future established at the UIA World Congress in June 1993 (cf. Ref.1), and the Declaration on Sustainability and Cultural Diversity approved by the UIA World Congress in June 2008, underline the following facts:

The building and construction industries, and the processes that create, modify and remove built structures, and, the whole-of-life operation of those facilities represent half of our opportunity to resolve today's climate challenge. In addition, the environmental impact of our food, water and waste handling systems is determined by the form and operating characteristics of our built environment.

In the 1980's the environmental focus was on energy and technical solutions. Now we know that technology alone cannot solve our problems; we must engage holistically to attain both sustainability and a high quality of life for all.

UIA Objectives

The UIA is committed to reducing, or reversing, the negative impact of the built environment on the global climate. Here at the UN Climate Change Conference in Copenhagen the UIA is initiating its Sustainable by Design strategy, which will lead to the adoption of practical programmes at the UIA World Congress and General Assembly in Tokyo in 2011.

The UIA will work to:

●**Foster** awareness and practical knowledge among architects, engineers, clients, investors, contractors, statutory authorities and the wider community on how building design, urban design and regional planning affect society's environmental impact and can contribute to sustainable development and redevelopment.

●**Serve** the Millennium Development Goals and acknowledge wisdom from the past to improve the quality of life for all communities through sustainable development, whilst remaining open to new ideas.

●**Formulate**, in cooperation with other stakeholders, global guidelines with clear objectives, criteria and methods for sustainable architecture and built environments.

●**Establish** Sustainable by Design as a universal architectural concept, by improving knowledge, strategies and methods across different climatic, political, social and cultural contexts.

●**Require** more and better education and training on Sustainability by Design within existing academic and professional development programmes, in accordance with the UNESCO-UIA Charter for Architectural Education.

SUSTAINABLE BY DESIGN

Architecture must utilise holistic, integrative methods from the smallest scale up through that of city and regional planning, never forgetting that buildings, landscapes, the natural environment and infrastructures are all essential elements in creating a sustainable future. A careful and considerate design of forms, geometry and spatial strategies, married with the appropriate materials, equipment and functional distribution can reduce the use of resources, greenhouse gas emissions and overall environmental impact by 50% to 80%.

Sustainable by Design: Strategy

●**Sustainable by Design** begins with the earliest stages of a project and requires commitments between all the stakeholders: clients, designers, engineers, authorities, contractors, owners, users and the community.

●**Sustainable by Design** incorporates all aspects of construction AND future use based on full Life Cycle Analysis and Management.

●**Sustainable by Design** optimises efficiency through design. Renewable energies, high performance and environmentally benign technologies are integrated to the greatest practical extent in the project conception.

●**Sustainable by Design** recognises that all architecture and planning projects are part of a complex interactive system, linked to their wider natural surroundings, and reflect the heritage, culture, and social values of the daily life of the community.

●**Sustainable by Design** seeks healthy materials for healthy buildings, ecologically and socially respectful land-use, and an aesthetic sensitivity that inspires, affirms and ennobles.

●**Sustainable by Design** aims to significantly reduce carbon imprints, hazardous materials and technologies and all other adverse human effects of the built environment on the natural environment.

●**Sustainable by Design** endeavours to improve the quality of life, promote equity both locally and globally, advance economic well-being and provide opportunities for community engagement and empowerment.

●**Sustainable by Design** recognises the local and planetary interdependence of all people. It acknowledges that urban populations depend on an integrated, interdependent, and sustainable rural-urban system for their life support systems (clean water and air, food, shelter, work, education, health, cultural opportunity, and the like).

●**Sustainable by Design** endorses UNESCO's statement that cultural diversity, as a source of exchange, innovation and creativity, is as necessary for humankind as biodiversity is for nature.

Sustainable by Design: Implementation

The UIA Council has extended the *Architecture for a Sustainable Future Work Programme's* terms of reference, by establishing an international project team to develop practical methods for implementing the **Sustainable by Design Strategy**. The UIA will work directly with all of its 124 member countries to develop specific, national plans for implementing the **Sustainable by Design Strategy** over the coming year. **The Sustainable by Design Mission** will then be launched at the UIA World Congress in Tokyo in 2011, and submitted for formal adoption at the 2011 UIA General Assembly.

Louise Cox AM
UIA President on behalf of UIA

Presentation to the COP15 Meeting, Copenhagen,
Denmark International Union of Architects
December 2009

Vision 2050:
Building-related Measures to Counteract Global Warming

Tokyo, December 2009

The five building-related associations[*1] in Japan have conducted a variety of initiatives to cope with global environmental issues, including in the year 2000, the enactment of the “Architectural Charter for a Global Environment”. Since then, scientific knowledge regarding global warming has been accumulated, and social concern about this topic has continued to grow throughout Japan. Tackling this issue requires mid-and long-term efforts, while drawing up a concrete roadmap is a pressing need.

Since demographic, lifestyle, energy and resource issues are deeply connected to global warming, these must be the basic factors for constructing a sustainable society. Individual buildings and city-regions, being a part of the built environment, play a significant role thereupon. After consideration of domestic and international responses to global environmental problems, Japan’s seventeen building-related associations have sought mid -and long-term goals towards the year 2050 for buildings, cities, and regions. Based on the basic principles of the Architectural Charter for a Global Environment, which includes the key issues of 1) longevity, 2) symbiosis, 3) energy conservation, 4) resource conservation and cyclicity and 5) heritage, the associations have begun to closely examine concrete architectural measures to counteract global warming.

In response to the warning set forth in IPCC (Intergovernmental Panel for Climate Change) ’s Forth Assessment Report, many countries from around the world have set a long term goal to reduce greenhouse gas emissions by 50% of the current level by the year 2050. Taking into consideration the limited carrying capacity of the earth, the backcasting method should be used to set goals for the future in order to strategically transform our market and society, which are closely related to architectural design and urban/regional planning.

In the course of making this transformation, all countries must play their own role and accept larger responsibilities. IPCC states also that the building sector has the largest potential to contribute to short -and mid-term mitigation and prevention of global warming. This indicates that we, those involved in the building-related sector, are in the very position to lead the world in executing large scale measures to counteract global warming.

Therefore, in order to prevent the negative effects of global warming, we must do our best to implement the carbon-neutralization of buildings and cities/regions by minimizing CO_2e. Our goal is to carbon-neutralize new construction during the next 10 to 20 years, and then all buildings, including existing buildings, by the year 2050.

Future buildings, cities and regions will determine the form of society in the future. Therefore, we hereby propose to start working together to achieve carbon-neutralization[*2] of buildings and cities/regions for the sake of creating a low carbon society, and share with all the building-related stakeholders the goals of **Vision 2050 for Carbon Neutralization**.

[*1] The five building-related associations: 1) Architectural Institute of Japan, 2) Japan Federation of Architects & Building Engineers Association, 3) Japan Association of Architectural Firms, 4) The Japan Institute of Architects, 5) Building Contractors Society

[*2] “Carbon-neutral” refers to achieving zero carbon dioxide emissions by balancing a measured amount of carbon released with an equivalent amount sequestered or offset throughout a whole year. This is achieved by controlling energy demands, providing necessary energy by renewable resources, and/or combining the reduction of CO_2 emissions with other projects. Carbon neutral indicates being as close to the situation of zero CO_2 emissions as possible.

Vision 2050:
Building-related Measures to Counteract Global Warming

Ultimate goal: Long-term stabilization of climate change

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Global reduction of green house gas emissions by 50%

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Carbon neutralization of the building-related sector by 2050

① Promote the minimization of CO_2e from buildings during the next 10 to 20 years through the carbon-neutralization of new construction

② Promote carbon-neutralization of all buildings, including existing buildings, by the year 2050

③ Promote carbon-neutralization of the surrounding city/region and society

Policy-1: How to plan, design, construct and operate carbon-neutral buildings

① Design and operate buildings to minimize energy consumption

② Design buildings to use renewable energy sources to provide the amount of energy consumed

③ Design and operate a building to extend its lifespan

④ Promote the utilization of eco-materials which reduces CO_2e

⑤ Plan to reduce off-site CO_2e when on-site CO_2e are irreducible

⑥ Formulate and utilize a life-cycle management system applied consistently throughout the life of a building (e.g. from design, construction, operation, renovation to disposal)

Policy-2. How to construct a carbon-neutral city/region and society

① Promote measures even on urban and regional levels

② Observation and utilization of the local climate in building design

③ Promote forests as carbon storage

④ Utilize information and economic systems

⑤ Lifestyle reform

⑥ Share the long-term vision of each city/region and society

Journey from the energy efficient building towards the carbon-neutral building