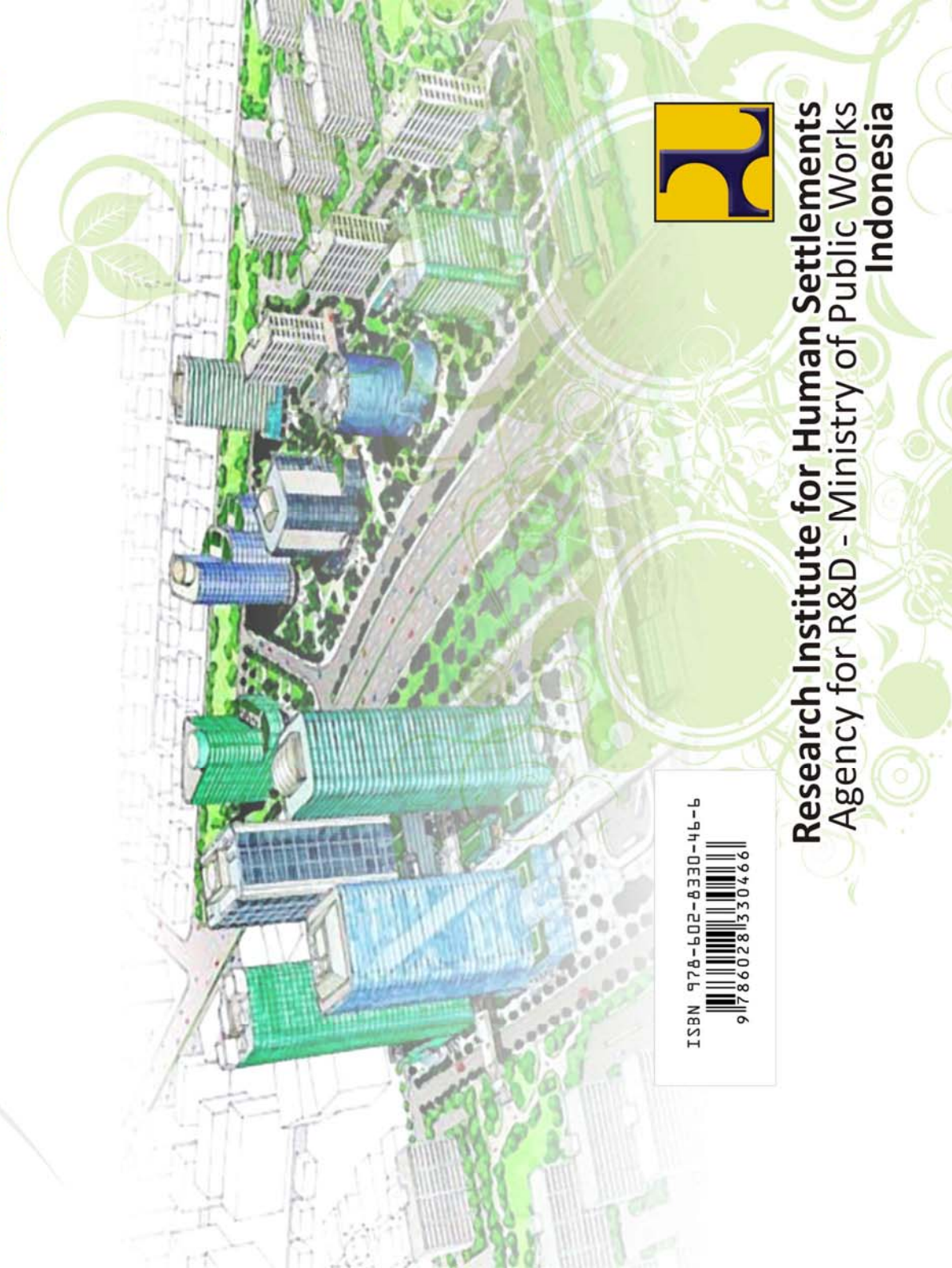


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2nd International
Seminar on tropical

eco settlements

Green Infrastructure : a Strategy to Sustain Urban Settlements
Bali - Indonesia, November 03 -05, 2010



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Green Infrastructure: a Strategy to Sustain Urban Settlements

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Edited by:

Dr.-Ing. Andreas Wibowo

Research Institute for Human Settlements

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PREFACE

The global climate change and temperature rise become the world's awareness, and are widely recognized to affect the life of living creatures. Experts predict that the problems are getting more serious. The cities' growth and development are basically driven by space needs due to the population growth as well as their activities and interactions. On the other hand, the growth will always be followed by the development of housing and infrastructure. While it will naturally happen, the principal challenge is how to make the development sustain in terms of environmental, social, and economical activities.

Despite having different meanings and definitions to many individuals and organizations, green infrastructure occupies a vital segment in the long-term sustainable development. It refers to a network of multifunctional and physical environments and green spaces, including open spaces, garden, woodlands, green corridors, street trees, water conserving systems, energy conserving systems, and green buildings, thereby covering both natural and engineered or human designed systems. Green infrastructure is recognized as having multiple social, economic, and environmental benefits to communities. As like other types of infrastructure, green infrastructure should be strategically planned and managed to underpin the society.

The 2nd International Seminar held in Sanur, Bali-Indonesia in 3-5 November 2010 with the theme of *Green Infrastructure: A Strategy to Sustain Urban Settlements*, is part of the International Eco-settlements Seminar Series that was firstly organized in 2006 by the Research Institute for Human Settlements. The seminars provided opportunities to share views and experiences across countries regarding the current issues, best practices and policy implications of green infrastructure and sustainable development.

A total of 65 papers from Malaysia, Netherland, Philippines, Nigeria, Thailand, China, India, United States of America, Singapore, Australia, and Indonesia that discussed 3 major issues on *eco planning and design, green building lifecycle, sustainable settlements and environment* were presented in the parallel sessions on Day One and Day Two. Optional field-trips were held on Day Three to Sarbagita (solid waste treatment), Panglipuran (the traditional housing compound) and Green School (environmentally concept school).

We do hope this proceeding can be contributed as a source of knowledge and experiences on the development of eco-settlements especially for the tropical regions in the terms of green infrastructures.

Denpasar, 12 November 2010

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Director of Research Institute for Human Settlements

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TABLE OF CONTENTS

Preface	i
Steering Committee	ii
Scientific Committee	ii
Organizing Committee	iii
Developing a Model of Dumpsites Rehabilitation Toward Sustainable Landfill <i>Sri Darwati</i>	1
Reviews on Old City Landscape with Reference to Traditional Fishing Village Settlements in Western Coastal Region, Peninsular Malaysia <i>Ahmad Sanusi Hassan</i>	11
Transforming Lifestyle into Sustainable Future: Learning from the Japanese Attitudes in Environmentally Development <i>Dhini Dewiyanti Tantarto</i>	21
The Appreciation of Green Open Space Utilization in the Urban Area: A Case Study of Lansia Park on Sate Building Area in Bandung <i>Rr. Dini Handayani</i>	31
The Influence of Mass Form and Building Configuration of the Apartment Building toward Sustainability, Case Study Pakemitan Low-Cost Apartment Bandung <i>Alexander Sastrawan, Ryani Gunawan, Ariani Mandala</i>	43
Forest Conservation Behavior in Rural Settlements: Variables that Influence Subjective Norms in Predicting Intention toward Forest Cutting <i>I Wayan G. Santika, Cees J. H. Midden, A.M.C. Lemmens</i>	53
Implementation of Eco-Housing Concept on Upper Cimanuk River Basin, Case Study Kampung Muara RT 05 and RT 09 Desa Sukawargi Kabupaten Garut <i>Rani Widyahantari, Fani Deviana</i>	63
Life Cycle Approach to Sustainable (Eco) Urban Settlements in Tropical Context <i>Wanita Subadra Abioso</i>	73
The Influence of Architectural Design on the Thermal Comfort of Apartment Building in Bandung City <i>Suriansyah Y., Gunawan R.</i>	85
Equal Access to Services of Housing for Women: Inputs to Planning Housing Strategy, Case Study Fisherman Housing in Bandengan Region, Kendal Municipality, Central Java <i>Mila Karmillah, Hermin Poedjiastoeti</i>	95
Urban Solid Waste Management with Prespective of Compost Production from Organic Waste toward a Green Urban in Malaysia <i>Masoud A. Mir, Sanaz S., Noor E.A. Basri, Rawsan A. Begum</i>	101
The Development of Institutional Polder Management to Support Green Infrastructure: a Case Study in Kali Banger Semarang <i>F.X. Hermawan Kusumartono</i>	109

The Effect of Increasing an Fe Extracting from Fiber Concrete Strength <i>Nawir Rasidi</i>	121
Using Space Syntax Analysis in Determining Level of Functional Efficiency: A Comparative Study of Traditional and Modern House Layouts in Erbil City Iraq <i>Faris Ali Mustafa, Ahmad Sanusi Hassan</i>	131
Pumice Waste Utilization on Domestic Waste Water Treatment for Traditional Settlement Environment <i>Pradwi Sukma Ayu Putri, Made Widiadnyana Wardiha</i>	145
Condition on Water Supply and Sanitation Facilities at Traditional Settlement Community and the Improvement Efforts <i>Made Widiadnyana Wardiha, Pradwi Sukma Ayu Putri</i>	155
Redevelopment of Poor Settlements with Green Infrastructure Concept (Case Study in Makassar City, South Sulawesi, Indonesia) <i>Shirly Wunas, Andi Tenri Dio</i>	171
Collapsed Before Demolish: the Case Study of Jaya Supermarket, Malaysia <i>Abdul Aziz Hussin, Abdelnaser Omran</i>	181
Urban Forest Planning in the Municipality of Bandung <i>Occy Bonanza, Nia Kurniasih Pontoh, Bagas Dwipantara Putra</i>	195
Thermal Comfort in the Different Settings of Low-Income Dwellings in Surakarta, Indonesia <i>Yayi Arsandrie, Stanley R. Kurvers</i>	203
Study on Adaptive Thermal Comfort of Paon (Traditional Building in Penglipuran Village, Bali) <i>I Ketut Suwantara, Rini Nugrahaeni, Iwan Suprijanto</i>	213
The Importance of Land Use and Structural Design for Better Coastal Community Resilience (Case Study: Pangandaran Tourism Area) <i>Mizan B. Fuady, Heru Ramanda</i>	223
Urban Design Guidelines for Tropical Settlements in the Cities <i>Basauli Umar Lubis</i>	233
Application Model Traditional Building for Support Eco Tourism Environmental Settlement in Bena Village <i>Iwan Suprijanto, Muhajirin, Made Wahyu Bayu Surya</i>	241
Applications of Laminated Bamboo as a Wood Substitution on Tradional Building Model <i>Iwan Suprijanto, Putu Geria Sena</i>	249
Modernization Theory and House Garden Transformation A Case Study in Erbil City <i>Salahuddin Y. Baber, Ahmad S. Hassan, Susan T. Ismail</i>	259
Spatial Planning on Flood Risk Assessment and Zoning in Southern Johor, Malaysia <i>Ekhwan M. Toriman, Joy J. Pereira, Sharifah M. Syed Abdullah, Nor Azlina A. Aziz</i>	271

Green Network as a System for the Fulfillment of Green Space Needs in High Density Settlement Area	279
<i>Tifa Nur Latifa, Sofia Chaeriyah</i>	
Reliability of Structures and Construction System of Berugak Sekenem (Sasak) Traditional Building on the Earthquake	291
<i>Avend Mahawan, Rusli, Made Aryati</i>	
Reliability of Structures and Construction System of Jineng (Bali) Traditional Building on the Earthquake	301
<i>Aryati, Rusli, Avend Mahawan</i>	
Study on the Use of Rice Husk Ash on Concrete Mix with Design Compressive Strength from 20 up to 60 MPa	309
<i>Bernardinus Herbudiman, Dudy Goemillar</i>	
Integrated Ecological Planning in Singapore: Neotiewpia Eco-Village in Bustling Metropolitan	319
<i>Gunawan Tanuwidjaja, Trond Inge Lovdal, Anbarasi Boopal, Kiang Lip Eugene Goh, Fan Bu, Hoi Ki Fong, Mei Lym Yan</i>	
Green Infrastructure as Understanding towards Indonesian Sustainable Development Urban Sanitation in Indonesia: Translating Global Goals into Local Action	331
<i>Naning Adiwoso</i>	
Thermal Comfort at Stilts House in Manado	345
<i>Debbi A.J. Harimu</i>	
Landscape Shifting: a Design Exercise from "Bangka Belitung Eco-Park New Landscape in Ex-Mining Development" Competition	357
<i>Putri Kinasih</i>	
Developing Spatial Pattern of Traditional Bajo Settlement to Conserve Coral Reef	369
<i>Aris Prihandono</i>	
Evaluation of Ecological Design Principles in Park in Bandung Municipality (Case Study: Upper Cilaki Park and Dewi Sartika Park)	381
<i>Runita Kesumaramdhani, Denny Zulkaidi, Bagas Dwipantara Putra</i>	
Judicial Review on the Settlements Arrangement Based on Eco-Settlements	391
<i>Lia Yulia Iriani</i>	
A Systematic Review of the Significant of Sense of Place for Neighborhood Center as Behavioral Settlement	405
<i>H. Farkisch, A.I. Che-Ani, M. Surat, M.F.M. Zain, V. Ahmadi</i>	
Integration of Intensive Green Roof with Water Infrastructure	415
<i>Elis Hastuti, Fitriyani Anggraini</i>	
Design Framework for Growing and Transformable House in Malaysia: Lesson from Design Flexibility of Traditional Malay House and Some Modern Architecture Ideas	425
<i>N. Utaberta, M. Mohd. Tahir, N. Goh Abdullah, N. Spalie</i>	

Banjarbaru Green Open Space Distribution and It's Ecological Value <i>Krisdianto, Ninis H. Haryanti, Ichsan Ridwan, Hafizh Prasetya</i>	435
Economic Valuation of "Pamsimas" Water Use in Human Settlement <i>Yudha P. Heston</i>	445
An Environmentally Upgrading Approach and Stakeholders Role in Slump Areas of Central Cigugur Cimahi City, West Java Province <i>Dimas Hastama Nugraha</i>	453
Developing Fuzzy Cognitive Maps Model for Sustainability Performance Assessment <i>Badr Alsulami, Sherif Mohamed</i>	459
Strategic Issues towards Implementing Sustainable Construction in Indonesia <i>Reini D. Wirahadikusumah, Muhamad Abduh</i>	471
Local Building Materials from Waste Pumice Stone <i>I.B.Gd. Putra Budiana, Rusli, I Ketut Narsa, Iwan Suprijanto</i>	479
Ecological Design Principles for Urban Riverside Area (Case Study: Cikapundung Riverside, Bandung Municipality) <i>Ivaldi Lukman, Nia Kurniasih Pontoh, Bagas Dwipantara Putra</i>	491
Rebuilding Back Better of Tsunami Affected Settlements using Infrastructure, Livelihood, and Environment Based Approach in Aceh Province <i>R. Pamekas</i>	503
The Experiences and Challenges of Bandung Spatial Planning in Implementing Green Infrastructure towards Sustainable Metropolitan Bandung <i>H.M. Sumpena Hikall, Elvi Efrini AS, Cahya Mulyana</i>	515
Symbiotic Riverfront Revitalization Concept of Winongo Riverfront Redevelopment in Winongo River, Yogyakarta City <i>Danang Yulisaksono</i>	527
Promoting Sustainable Development in Providing Clean Water for Community, Case Study: Solar Water Pumping System in Banyumeneng, Gunung Kidul Yogyakarta <i>Mulyana Karim, Muhammad Nurfajri Alfata</i>	539
The Application of Balinese Traditional Building Model with Eco-Architecture Concept in Bali Province <i>Muhajirin, Iwan Supriyanto, Made Wahyu Bayu Surya</i>	549
Fitting Participation into Development Community Participation in Spatial Planning in Ayigya Kumasi Ghana <i>I Nyoman Gede Maha Putra</i>	563
Studies on Thermal Comfort Level and Occupants Thermal Adaptive Behaviours in the Pasar Jumat Multy-Stories Building <i>Wahyu Sujatmiko</i>	575
Actualizing Communities of Practice (COPs) and Situated Learning for a Sustainable Eco-Village <i>Maria Victoria Pineda</i>	585

Gehl's Idea on 3 Outdoor Activities: Can Denpasar Deal It? <i>Ayu Putu Utari Parthami Lestari, Ayu Feby Sarita</i>	591
Urban Air Pollution – A Case Study of Tiruchirappalli City South India <i>Sirajuddin M. Horaginamani, M. Ravichandran</i>	599
Laminate Bamboo as an Alternative to Construction of Wood Substitute Eco-Friendly Technologies <i>Dedi Kusmawan, Rusli, IB Gd. Putra Budiana, Iwan Suprijanto</i>	603
Heat Island in Garden City Area of Bandung Indonesia <i>Yasmin Suriansyah</i>	613
The Improvement of a Denses Settlement of Kampung Ciputri in Cimahi, Indonesia: Between the Need and the Anxiety <i>Siti Zubaidah Kurdi</i>	625
Utilization of Gelam Timber for Alternative Building Materials on Transmigration Houses <i>Lasino, WS. Witarso</i>	633
Towards Living at Low Energy Carbon Home <i>Purwito</i>	643
Five Principles for Creating Environmental Policies that Work <i>Thomas S. Mullikin</i>	655
Planning Sustainable Cities in Africa <i>Geoffrey I. Nwaka</i>	667

TRANSFORMING LIFESTYLE INTO SUSTAINABLE FUTURE: LEARNING FROM THE JAPANESE ATTITUDES IN ENVIRONMENTALLY DEVELOPMENT

Dhini Dewiyanti Tantarto¹

ABSTRACT: The core of this paper is to emphasize the important of human impact to the environment, and we must change our attitudes immediately into be more wise, especially for facing the nature. We should try to consider the social and cultural approach to face an environmentally development . Japan's environmental history and current policies reflect a balance between Economic Development and Environmental Protection. Japanese dwelling have traditionally reflected Japanese attitudes toward nature and designed not to exclude the nature, but to harmonize with it. Although currently the major cities in Japan tend to build their shelters vertically, but they still maintained their local culture.

This paper will describe the review of the Japanese culture to the pattern of their habitable. While living in the modern era with advanced technology, they can still maintain a balanced development between physical development, economy, culture and environment. Influence of living humbly and simplify assist them in controlling the environment. The effect of second world war, made Japan's pursuit of deterioration with rapid economic development, which inevitably had an impact on physical development. Ironically, while the West was discovering some of the qualities of Japanese content through Modernism, the Japanese were discovering Western Modernism in part as a continuation of their modernization and imitation of the West. Consciousness began to emerge them when they felt that something missing from their lives, namely: the meaning of life. This awareness, made them looking forward to go back on the strength of their social culture.

The result is a balanced development, which leads them to sustainable development especially in eco-settlement (or ecotropical concept which more appropriate in Indonesia). These experiences can be used for the Indonesian people, to always return to the values of local wisdom, by starting to change back to the way that we live.

KEYWORDS: *Social and Cultural Approach, Lifestyle, Attitudes, Local Wisdom.*

1. INTRODUCTION

"Eco-Settlements" is the concept of sustainable settlement development with the principle of the balance of economic, social and environmental, or in other words: economically viable, socially acceptable and environmentally sound (1). Development should not only focus on economic or technical issues alone, but must begin to touch the socio-cultural issues, which of course based on the

¹ Lecturer, Architecture Department, Faculty of Engineering and Computer Science, Universitas Komputer Indonesia, Bandung, Indonesia

wise use of the environment. Architecture is a science that studies not only about buildings but also it's related to humans, and environment. Now, many architects are thinking about how to plan, design, or redesign something with environmentally friendly concepts. *Eco architecture* (definition by Heinz Frick) is the ecological dimension in architecture which paying special attention to the natural environment and natural resources (2).

The development purpose is to improve the human welfare, but sometimes it also becomes the cause of human misery itself. The presence of industrial era, gradually producing a new culture and made everything easily and treat the old one as a useless stuff. Unconsciously, that attitudes made man prioritizing technology and distancing human from their natural environment. It was also changed the concept of human settlement. We ruin our natural habitat for the sake of the development cover up by the human welfare. In reality, there are so many empty buldings and unused one, proven that in fact there were not the urgent needs and just for the sake of their prestiges.

This paper refers to the Japanese concept of managing the environment. As a developed country, Japan was successful enough in development that still pay attention to nature as a design force. Actually, in their past long period, Japan-ever run into destruction of the nature and faced loss of their identity. The defeat in the second world war made Japan ambitious as a leading country in economic and high technology power. Development is deliberate only for those purposes. But in the end, they began to feel the effects, there is something missing in their lives. Finally they realize that human factors, social aspects, and feelings aspect must be included in design considerations. Numerous studies have shown that, their traditional architecture concept had more attention to controlling the balance of nature and huan itself. Finally, they began to return to the values of their local tradition principles, still remain and realize that they live in the technological era. Living harmony with the nature made Japan has succeeded in making sustainable development.

The Indonesian which known as people who like to adopt from foreign culture, included from Japanese, should start to emulate their positive side in terms of their attitudes to save nature. Without forgetting the context that Japan is a sub-tropical country, Indonesia needs to learn from them, especially in terms of a simple view that they have.

2. THE INFLUENCE OF CULTURAL CHANGES

Ecosettlement systems are the patterned ways in which humans distribute themselves across the land, the ways in which the inhabitants of settlements interact with people in other settlements and their interactions with nature. Not only have ecosettlement systems evolved along with the rise of social complexity and hierarchy, but they have also played a generative role in human social evolution at several crucial junctures.

Social change is a symptom of cultural change in social structure and cultural patterns in a society. Socio-cultural changes are common symptoms that occur over the life in every society. It is humanizing that every man wants to change to follow the time. Being bored is actually cause of human change, instant thing made the easy living but unconsciously, our lifestyle change as well.

No exception, our people also changes in lifestyle that resulted in changes in the system of values, especially concerning in his views on housing, as shown in Table 1:

Table 1. Lifestyle Changing and Its Impact

CULTURAL CHANGES	IMPACT
1. The use instant goods such as: plastics, stereoform, etc which is not followed by good behavior of taking out the trash. There is no attention to sort the	Now many houses do not even have a trash can. They put the garbage in plastic in front of the house. The view that the trash can damage the beauty of

organic waste and organic one.	the building. As a result they just rely on the trash system that manage by the local government. whereas our ancestor taught to manage waste by sorting into fertilizer, selling unused bottles, paper and plastic. Only a bit of waste dumped to landfill.
2. The influence of western culture that is not followed by a consideration of Indonesia's climate and culture	Eventually many buildings become uncomfortable for users. For example: <ul style="list-style-type: none"> ▪ Building with lots of glass, finally use curtain because of heat. ▪ Bathroom with bathtub, while not all of the Indonesian change their bath style so finally the bathtub only used as a water keeping. Some people also still not familiar with the sitting toilet. ▪ Cross ventilation considered as an outdated design, as a result many buildings using artificial system.
3. Consumerism led some people like to waste money just to show their prestige	Many buildings (particularly residential) are uninhabited, because the owner has more than one houses. All of them just for their prestige event.
4. Changes in their financial capability, made someone change their lifestyle. Before, they just need a small home fit with their needs, but now they need the bigger, wider, higher and sometimes more than one	Many buildings (particularly residential) were not considered with the capacity. Building became extensive and large meanwhile inhabited only by a few of people.
5. Western styles and materials are considered more classy than the local property	Many buildings do not fit with the environment and ultimately not be suitable for the Indonesian. It is hard to maintain the material and take costs for it.

3. JAPANESE TRADITIONAL PHILOSOPHY WHICH BECOME THE SPIRIT OF ECOSSETTLEMENT DEVELOPMENT

3.1. EMBRACING THE SPIRITS

Since antiquity, the Japanese have stood in awe of nature, personified in the *kami* (deities) associated with prominent natural features such as mountains and rivers. Ensuring harmony between these powers and mankind required the proper seasonal rituals of purification, fertility, and thanksgiving. These were the responsibility of the Shinto priesthood. Initially a loosely structured assemblage of local myths, creeds and practises, Shinto became more organized and its rituals more codified during the 8th and 9th centuries, as it was forced to compete for support with Buddhism. Shinto places of worship are called *shrines*, while those of Buddhism are referred to as *temples* (3). A distinctive and pervasive feature of shrine architecture is the *torii*, the tiered gateway that serves to separate sacred precincts from the mundane world, and through which devotees and visitors usually pass to reach the building within (Fig.1). Although many *torii* are painted an auspicious vermilion, others are fashioned of plain, unfinished beams. Shrines always surrounded with natural features. An huge tree may be designated as a *shinboku* or a *God tree* (Fig.2). Such natural features are typically adorned with *shimenawa* (sacred ropes of twisted straw) from which strips of white paper are hung. These symbols (natural features and *torii*) is to demarcate the sacred (3).

Japanese temple architecture has been strongly influenced by both Korean and Chinese models. Often seen on temple ground is a pagoda, a multistory tower where sacred relics are enshrined (Fig.3). Temple areas also surrounded by the natural resources (Fig.4).

The combined of Buddhist's temple and Shinto's shrine also shown a good relationship of building and their natural habitat (Fig.5). This spirit still inspires the Japanese people, which although only have a narrow field (due to the expensive land), they still retain the combination of man-made environment with its nature (Fig.6).



Figure 1. Torii



Figure 2. Shinboku (God Tree)



Figure 3. Pagoda



Figure 4. Temple and Its Natural Environment



Figure 5. Temple of the Golden Pavilion : Kinkakuji



Figure 6. Garden in Modern House

3.2. AESTHETICS PHYLOSOPHY

3.2.1. *Mono No Aware* (The Pathos of Things) :

An appreciation of the ephemeral beauty of life. Acutely aware of the passage of time and the transient nature of all phenomena. The meaning of the phrase *mono no aware* is complex and changed over time, but it basically refers to a "pathos" (*aware*) of "things" (*mono*), deriving from their transience (4). The most frequently cited example of *mono no aware* in contemporary Japan is the traditional love of cherry blossoms, as manifested by the huge crowds of people that go out every year to view (and picnic under) the cherry trees (Fig.7). The blossoms of the Japanese cherry trees are intrinsically no more beautiful than those of, say, the pear or the apple tree: they are more highly valued because of their transience, since they usually begin to fall within a week of their first appearing. This spirit was instilled respects for nature, the way of process, and the beauty of each object according to its nature. This spirit is still exists until now, the beauty of nature is still considered in their small home in somehow (Fig.8). Sliding latticed doors called *shoji* open to the outside to bring nature inside. Garden views may be enjoyed from within or from the *engawa*, a narrow veranda running along the sides of the house. That's way Japanese created the dry garden, *bonsai* garden, rock garden etc, for the sake of their beloved of the beauty of the nature.

3.2.2. *Wabi* (Subdued, Austere Beauty) :

Simple of thought. "*Wabi* means that even in straitened circumstances no thought of hardship arises (4). Even amid insufficiency, one is moved by no feeling of want. This spirit, made the Japanese like the simple things of anything. They made anything just the way that it should be or in architecture it is similar with "form follow function" idiom. Japanese never made things

with the oversizes, overdesigns, etc. It is made fit for their needs, eventhough they were wealthy man. This principle keep their environment from the damaged and maintained the balance of the nature.

3.2.3. *Sabi* (Rustic Patina):

The concept of *sabi* carries not only the meaning *aged*, in the sense of ‘*ripe with experience and insight*’ but also that of tranquility, aloneness, deep solitude (4). For building, this spirit applied by contrasting building with its natural resources. They belief that the inner beauty of the building can emerged by its seclusion. It is good for the balancing of environment (Fig.9). In architecture, this concept is supported by the existence of building codes, mentioned by FAR (Floor Area Ratio) rules and BCR (Building Coverage Ratio) rules.

3.2.4. *Yûgen* (Mysterious Profundity):

Yûgen may be, among generally recondite Japanese aesthetic ideas, the most ineffable. The term is first found in Chinese philosophical texts, where it has the meaning of “*dark,*” or “*mysterious*” (4).

3.2.5. *Kire* (Cutting):

A distinctive notion in Japanese aesthetic discourse is that of the “cut” (*kire*) or, “cut-continuity” (*kire-tsuzuki*) (4). This reflects the possibility of life's being cut off at any moment. At Ryôanji (Kyoto) the rock garden (Fig. 10) is cut off from the outside by a splendid wall that is nevertheless low enough to permit a view of the natural surroundings (Fig.11). This park perform the Japanese embed for the honor of the world included the nature just the way they were.

These all spirits perform the good combination of human built environment and their nature. The natural environment of Japan has played a decisive role in shaping Japanese designs. Believing that the majesty and mystery of nature defied realistic portrayal.



Figure 7. Enjoy The Blossoms



Figure 8. Borrowed Scene that Can Enjoy From Inside Also



Figure 9. Temple of the Golden Pavilion : Kinkakujii



Figure 10. Ryôanji Rock Garden (Kyoto)



Figure 11. The Splendid Wall which separate inside from outside, symbol of built environment and natural one.

3.3. TRADITIONAL VERSUS MODERNITY (1)

Japanese traditional village shown the good composition between building, landscape and their climate. Japanese dwelling have traditionally reflected Japanese attitudes toward nature. They have been designed not to exclude the nature, but to harmonize with it; not to isolate residents from the natural elements, but to incorporate those elements in comfortable living environments. Even though the high cost of land has pared the garden areas of city homes to a minimum, most retain a few feet for planting between the house and the wall surrounding the property. Before, their houses, tended to be horizontal and a minimum. Although currently the major cities in Japan tend to build their shelters vertically, but they still maintained their local culture (4).



Figure 12. Traditional House



Figure 13. The dwelling that compound encompasses a living area and garden

The traditional dwelling compound encompasses a living area and garden, surrounded by a wall an gate marking the transition from public to private space (Fig. 13). The top roof is made of thatch, while the lower one is made of slate (Fig.12).



Figure 14. Modern House

Their modern house (Fig.14) still considering a sloping roof and the space between outside and inside. Local values are still applied by them, even though they lived in the apartment

3.4. APPROPRIATE USES

The pleasing visual proportions of the interior are achieved by using dimensions that are of a standard unit called a *ken*. The distance between supporting posts and dimensions of doors and tatami flooring all reflect this basic unit. Use of fusuma allows living space to be readily adjusted (5).



Figure 15. Tatami Flooring

3.5. FLEXIBILITY OF USE

Futon (traditional beddings) (4) is laid out at night, then folded and stored away during the day to free space for other use (Fig.16). The room can be use as a living room, dining room, working area such ironing, sewing, reading, writing etc. The use of folding furniture helps them to put away and clear the room at night as a bedroom (Fig.17). They did not put much of things (clothes, electronics, books or others) in the cabinet since they also need to folded the futon inside. They just have few clothes to wear and it will put away when the season change (Fig 18 and 19). Not like Indonesian which like to put many clothes in their closet eventhough it is already full. The Indonesian traditional living concepts were already closed to this concepts. One room can use for many activities, so they did not need to build the big house for their living.



Figure 16. Futon for Sleeping for night



Figure 17. Use as dining room for noon



Figure 18. Daily Things put inside The Cabinet neatly



Figure 19. Japanese Cabinet

3.6. FLOOR AND WALL.(5)

The importance of the floor in Japan is underlined by its treatment. No earth-soiled shoe ascends from outside to contaminate the floor which has been surface for sitting, sleeping and other “clean” activities. Solid wall is used only for outside, sometimes it has a series of widely and regularly spaced timber posts with nothing between (5). In this way there exists “free space” between inside and outside, with the boundary between the two permanently delineated by a change in floor level and of surface. If the desire is to interrupt this space for whatever reason (privacy, weather, security, etc.) then it is by way of light and removable sliding screens and/or suspended blinds (Fig.20).



Figure 20. Free space for dividing the different room

3.7. USE OF WATER (FOR BATHING)

Mostly, Japanese taking a bath two times a day. The really bath was take at night, while in the morning, they just wash their face. Japanese people love to have a soak to refresh their body. Even so, they are very efficient in water usage. Before soaking, firstly they brushing and cleaning their body outside the bathtub, until finish that, they come into the tub. When they finish their soaking, the water in the tub should not be discarded, because it will be used by other family members, until the last person finished their bathing, so the water may let to discard. The tub has a system to reheat the water in the tub (Fig.21). While in Indonesia, many people now love to take a bath using the bathtub and use the water just for one person. After that, they still need to take a shower. There are so many litres water throw away, while in some area lack of water supply.



Figure 21. Bathroom

3.8. USE OF MATERIAL

Commonly, they used a lightweight material (due to the earthquakes that often occur). The use of local materials is also used. Japanese were known as the fanatic nation for their local products (Fig 22).



Figure 22. Local and Light Material

3.9. THE AIR SUPPLY

Japanese people were very efficient in power consumption. As much as possible, usually they use the natural air circulation in their occupancy (Fig. 23). Air conditioner or heater using only when the weather was very hot or very cold. So they do not put a lot of things in their home which can make the room oppress and influence for the air temperature change. It is also make them more easy to clean up the room for a few minute.



Figure 23. Air System

4. CONCLUSION

Described experiences show that we also has potentialities of improvement and changes which may grow up from simple ideas. Maybe only a few persons will start, but the goals can be achieved to several contributions. We must conquer the control of our social-behavior system again. Opening our eyes, looking at the rally, becoming conscious, exchanging experiences and cooperating. Moreover, we have to be responsible. Things that we could learned:

- 4.1. The traditional values that have been taught from generation to generation predecessors actually have the power to maintain the harmony of natural and human needs.
- 4.2. Actually, every religion controlling the balance of the world. We should grateful for the God's gift.
- 4.3. Simplify lifestyle, unpretentious behavior really needed in the development towards a good management between environment and building.
- 4.4. Frugal attitude in life.
- 4.5. Beautiful did not mean anything, much better if beautiful excavated from the meaning of it.
- 4.6. Technology can go along with the values of life and can bring us in the direction of eco-settlements or ecotropical settlements (which more appropriate here).
- 4.7. From Spontaneous Approaches towards Planned Actions. It can happens from ourselves then can spread over the entire nation someday.
- 4.8. There can be a winning formula: key principle is "Thinking about Forever"

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