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Penanggungjawab International Seminar
Dr. Ir. Rea WIKANTARI, M.Arch
Marly Valenti PATANDJANAN, ST., MT

Reviewers
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Editor
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Architecture Department - Engineering Faculty
G. Hasanuddin University
Jl. Perintis Kemerdekaan Km. 10
Tamanan Melawai Makassar 90245
Tel. +62-411-586265, Fax. +62-411-287707
Email: arch@hasun.ac.id
PREFACE

The Department of Architecture Faculty of Engineering Hasanuddin University is pleased to present Proceeding of the International Seminar on Green Architecture and Environment, with a central theme Towards Green Compact City, Makassar, October 14th 2008.

This International Seminar aims particularly to explore the concept of green and sustainable living environments by means of a compact urban form. The idea initially based on the fact that progress towards sustainable development is essential. Meanwhile, green-oriented approach for sustainable development has been of utmost crucial issue nowadays. There has been a widespread consensus sustainability of our living environment relies on green development of the built environments that encompass macro-, mezzo-, and micro-environments including urban areas, architecture, housing, building structure, interior space, landscape, infrastructure networks. We understand that “green” extends beyond vegetation and parks or gardens. It covers empowerment of reversible energy, efficient usage of resources, and promotion of energy-saving environmental design. Moreover, we need to remember that sustainability of our living environment is not just about environmental concerns. It is also about economic viability, livability and social equity.

Cities, regions, and buildings are the main arena of human activity, yet at the same time are the greatest consumers of natural resources. In recent years researchers, architects, planners, developers, and policymakers have increasingly paid much attention on the relationship between urban form and sustainability. The suggestion has focused on implications of the shape and density of cities for the future. Strong arguments have emerged towards the notion of compact city as the most sustainable urban form. Meanwhile, environmental design has progressed towards the creation of a more compact city in order to achieve a more sustainable urban form. Urban compaction involves the promotion of town centre revitalisation, highly dense urban development, restricted rural development, mixed-use development, public transport promotion, transit oriented development, and concentrated services and facilities such as hospitals, parks, schools, leisure and amenities on transit nodes. Strong arguments state that compact city can overcome urban sprawl in terms of preservation of green space, regeneration of existing urban areas and urban vitality, less car dependency thus lower emissions, reduced energy consumption, better public transport services, and increased overall accessibility.
We are delighted that this Seminar receives enthusiastic responses from broad international colleagues, with a total number of 12 selected presenters, comprising 19 papers.

We would like to express our gratitude and appreciation to all keynotes speakers, presenters, participants, members of steering and technical committees, sponsors, as well as all of our colleagues for the invaluable contributions in this Seminar.

We wish all participants will find this Seminar intellectually beneficial as well as fascinating, and looking forward to meeting you all again in future seminars.

Makassar, October 9th 2008

The Organizer

CONTENT

Preface ........................................................................................................... ii
Content ........................................................................................................... iv

   Thraiya Mohd and Assoc Professor Dr Buang Alias .............................................. 1

2. The Concept Of Green Home In Housing Areas (Future Opportunity And Challenge)
   Edi PURWANTO .................................................................................................. 17

3. Green Architecture Actualization in Design
   M. Yahya SIAJUDDIN, Edward SYARIF .................................................................. 29

4. Compact City Development Model in Indonesia: A Kampung Oriented Development
   Muhammed Soni ROYCHANSYAH ...................................................................... 51

5. Limiting the Destructors of the Planet: Towards Green Approach in Architecture
   Juhlai WAHID and Bambang KARSONO .............................................................. 61

6. Improving Image of Makassar City Throughe of Green and Sustainable Tallo Riverside Area Development
   Arifuddin AKIL ................................................................................................... 71

7. The Implementation of Compact City Concept as the Sustainable Urban Form in Surakaya City-Indonesia
   Muhd. Zia MAHRIZYAR ..................................................................................... 81

8. Mitigation of Urban Heat Islands in Cities
   Bambang KARSONO1 and Juhlai WAHID ........................................................... 99

   Yusril KUSUMARIN ............................................................................................ 109

10. Digs Returns to Alun-Alun (Square) Meaning and the Role in Town Development
    Case Study: Alun-Aun Malang Town
    Juhlai WAHID1 and Bhakti ALAMSFAH ................................................................ 119

11. Sustainable House Design in Vernacular Housing
    Case Study: Dukuh Kampung, West Java
    Sugeng TRIVADI and Andi HARIJAB ................................................................ 129
12. Towards Open and Accessible Public Space  
Sherly ASRIANY .......................................................... 119

13. Primary Analysis of Daylight Availability in Hong Kong:  
Data Quality Control and Classification into Three Sky Conditions  
Ramli Rahim, S.S.Y. Lau, Baharuddin, Rosary Mulyadi .......................... 125

14. Open Building Concept in Floating House as A Symbio Architecture and  
Environment in Tempe Lake, Wajo Regency  
Naidah Naring, Happy Ratna Santosa, and Isprwono Sulemo ....... 139

15. Correlation Among Style of Building, Nature, Culture and Material  
Case Study: Traditional House Karampuang, Sinjai, South Sulawesi  
Lidwam  ........................................................................ 149

16. Sustainable Ecology In Contexts Global To Complex Mosque Al Markas  
Al Islamic Makassar  
Imriyanti, Mukti ALI ................................................................ 159

17. "Greenline" Models of Shopping Center in Makassar  
Affah HARISAH .................................................................. 167

18. The Self Sufficient Compact City  
Abdallah HARLANSYAH .......................................................... 177

19. Identification of Utilizing A Green Open Space as Cities Public Space  
Mini ARIFIN, Marly Valencia ...................................................... 185
COMPACT CITY DEVELOPMENT MODEL IN INDONESIA: A KAMPUNG ORIENTED DEVELOPMENT

Muhammad Sani ROYCHANSYAH
Lecturer and Researcher, Department of Architecture and Planning, Gadjah Mada University
sanroy2001@yahoo.com

Abstract. It is obvious that compact city development nowadays becomes wider spread as one of believed implementation to deliver a sustainable urban form. The strategy has popularly been tried to be implemented in developed countries in various efforts progressively. In the same time, under debates situation yet, approaches to deliver compactness strategy are also tried to be applied in developing countries. This paper aims to examine some possibilities and to order preposition conditions for compactness implementation in Indonesian cities. Kampung in Yogyakarta City as a case study as an important space unit for social, economy, and physical entity in Indonesian cities have revisited to find a possible model for compact city development in Indonesia. In the end of the paper, a Kampung oriented development (KOD) has been introduced as an underly approach for compact city development model in Indonesian cities.

Keywords: Compact City, Developing Country, Kampung Revisited, Kampung Oriented Development

1. COMPACT CITY DEVELOPMENT

Nowadays, "sustainability" appears to be emerging as one of the competing rationales for planning and design in almost entire worlds. The concept of sustainable development has officially become an important part of the urban development vocabulary. Urban developments have faced both new challenges and new references, how precisely to implement this concept into urban characteristics appropriately. Furthermore, there has been growing support in recent years, mainly in developed countries for an idea of a compact city as one of popular alternatives for urban form facing the sustainability paradigm (Jenks, et al., 1996; De Roo and Miller, 2000, Williams, et al, 2003). Meanwhile, in the developing countries, attempts of compact city implementation still face the basic social-economic problems of the communities (Burgess and Jenks, 2001). These conditions consequently bring different setting conditions of compact city attributes (Roychansyah, 2008).

This compact city idea originally has emerged primarily in response to widely acknowledged need to find more sustainable models for towns and cities in the
world. These trends seem to focus that this concept has been placed as an interesting guideline in urban policy strategy without deeply background consideration on its objectives and characteristics (Jenks, et al, 1996). As the demand increases, the compact city is employed directly as either some city government’s solutions or urban planner’s beliefs that it is able to solve the city from many problems related to sustainability, without any respects to real purposes of the concept through well understanding.

From the existing studies related compact city, we concluded that compactness is characterized by several attributes that each of them has someroles in conducting level of compactness (Roychansyah et al., 2004, 2005). Among attributes have strong causal effects and coherent relationships. Despite one attribute has strong influence to increase another attribute simultaneously, it cannot still represent the collective meaning of compactness or degree of relationship yet, rather than single interpretation contributed by each attribute to the compactness pattern. As described through diagram in Figure 1, those are six attributes: activity concentration, population densification, public transport intensification, city scale (city size) consideration, social welfare justification, and there exists a process to realize compactness respectively.

The idea of compactness of the city popularly has been progressively tried to be implemented in the certain developed countries in various names, like America and Canada with their smart growth or new urbanism, Europe, especially in England, with its urban regeneration, and Japan with its urban renaissance with many central city redevelopment projects (Roychansyah, 2005).

2. COMPACT CITY IN DEVELOPING COUNTRY

If developed countries courageously declared that compact city is one of popular remedy to deliver a sustainable urban form, many countries in the developing worlds still face the basic problems of urban life, such as housing affordability, jobless, poverty alleviation, environmental degradation, and so on. As early development of compact city concept in the developed world, now this idea still in debates on how this concept is able to be applied in the developing countries cities where they have different characteristics from their counterparts in the developed countries. Nevertheless, Burgess and Jenks (2001) stated that there are some potentials of developing countries urban condition in which easier condition to deliver such a compactness condition, namely population density.

Adapted from Newman and Kenworthy (1999). Figure 2 shows average of population density in some cities in the world. On the left side, developed countries cities have population density no more than 50 persons/ha. In contrast, on the right side, some Asian cities including Yogyakarta City where this paper undertakes this city as a case study, shows higher population density, two times or more than American or European cities. Furthermore, besides of population density, the developing countries cities have another potential, such as mixed use activities in a community. It is a natural condition where informal sectors and formal sectors both are important structure of work segregation.

In Table 1, this paper has tried to compare conditions of compactness attributes in developed and developing countries. As substantive considerations, we should absolutely understand that although there are different settings of compact city development in the both conditions, there are still spaces to explore some potentials and to apply some ideas in appropriate ways. As represented in Figure 3, the degree of compactness of cities would be different, depending on internal and external factors along the times. Some cities may have high degree of compactness in the past, but if it is measured now, the degree of compactness would be decrease since some factors have changed. It is similar with trend of compactness development idea in the planning world, in which some ideas has been initiated by predecessors, garden city movement for an example, in context of preserving agriculture land and infrastructure connection or ideas of mixed use zoning for another one, in context of mixed use activities.
3. KAMPUNG AND INDONESIA URBAN STRUCTURE

Discussions about kampung (refers to a residential or settlement area within a city) in Indonesia are varies and complex (see for example Guinness, 1986, Setiawan, 2003, and Steinberg, 1992). Nas (1987) explicitly wrote that Indonesian cities cannot be analyzed without discussing kampung as integral part of the cities. Setiawan (2003) stressed that despite the clear significance of kampung for Indonesian society, the Indonesian government continues to ignore the socio-political aspects of development in kampung, especially in housing markets. It means that social considerations that are vital to the formulation of urban and housing policies have thus been neglected. It substantially does not solve the basic problems in Indonesian cities.

As considerable beliefs that kampung in Indonesia takes an important role substantially in the process of urban development. As informal or popular settlement sectors in other developing countries, the kampung settlements have provided serviceable and affordable shelter for a majority of Indonesian urban households, more than 80% (McGee, 1996). As Setiawan (2003) stated, Kampung represents a dynamic process by which groups of people—mostly the poor—provide their own housing, control their environments, and engage in collective efforts to improve their lives.

Regarding idea of compact city development in urban areas in Indonesia, this paper considers kampung as important part of urban area in which a deep analysis should be carefully analyzed. Yogyakarta City located in Central Java is undertaken as case study to show some significance potentials in delivering city compactness. The city itself was founded in 1756 and the kampung has traditionally clustered together as important part of community settlements in the urban structure. Up to now, population of Yogyakarta City is about 420 thousand, while the population density is about 120 person/ha. It is distributed differently in 14 wards (kecamatan). There is a ward with 130 person/ha, contrary there is also a ward with more than 200 person/ha (see Figure 4). This population density is more than enough as main consideration of population densification of compactness attributes explained above. Consequently, this condition also brings high density in built urban areas. As illustrated in Figure 5, the kampung space is very dense settlements with lack of open space and forms irregular patterns of buildings and pathways.

![Graph showing population density in Yogyakarta City](image)

**Figure 3.** Number of population and population density in Yogyakarta City (1970-2005) (Yogyakarta in Figures, 2007)

![Graph showing distribution of population and population density in Yogyakarta City based on wards](image)

**Figure 4.** Distribution of population and population density of Yogyakarta City based on wards (Yogyakarta in Figures, 2007)

In the term of activity concentration, the kampung has offered a suitable model of mixed use activities. As McGee (1996) argued that the kampung represents a ‘dualistic’ model of the socio-econmic structure of cities in developing countries, traditional and modernity, formal and informal, legal and illegal activities.
Since it is argued that unity of activities in the same location by means of mixed-use development will lead to greater opportunities for successful sustainability in the area, balancing residential and non-residential uses in Yogyakarta City based on landuse data of its 14 wards represents very interesting findings. As shown in Figure 6, percentage results of non-dwelling to dwelling usage are variously big, 0.3-0.6 (8 wards) and 0.8-1.4 (6 wards). Despite this condition may be emerged by various forces like limited of engagement spaces in the kampungs, creativity or challenges in community facing the poverty, as well as lack of law of enforcement in urban space order. However, inevitably this condition primarily initiates an ideal condition of kampung as an entry point of compactness development.

Furthermore, issues of transportation in the compact city are arguably the single biggest environmental argument relating to urban form, especially for the developing country. Burgess and Jenks (2001) argued that urban transport usage in developing countries is not triggered by a planned policy rather than by limited access to own private vehicles. In contrast, now in Indonesia cities, this condition is worsened by a market driven. People can brings back a motorcycle to home easier, even without any down payment in the beginning of their contracts. Although there has been an initial good model in bus rapid transit (BRT) service in Yogyakarta City, namely Trans-Jogja, released in the beginning of 2008, a rapid evaluation of the project and relations with other supported transport system have not forecasted well yet. However, we can examine Yogyakarta City transportation condition by comparing composition of vehicle numbers. Figure 7 illustrates how Yogyakarta City’s transport condition is still dominated by private vehicles, mainly by motorcycle (210075). The second place is for private car (323323), followed by truck (12730), public taxi (776), and public bus (620) respectively. Accumulation of private vehicle numbers,* both motorcycle and private car, is around one third of Yogyakarta City’s population itself. This number would be greater if we consider transport condition of Yogyakarta Metropolitan Areas (Yogyakarta City and its surrounding sub-urban areas that compile some wards from its neighbor regions, Siem Reap Region and Bantul Region).

From the view point of compactness attributes, the transport condition of Yogyakarta City is so far from an ideal situation in an urban compactness, where a competitive public transportation system may be a key initial action to overcome other crucial problems in transportation. Moreover, more efforts toward finding appropriate intensification of public transport in medium city size in developing countries like Yogyakarta City may rapidly be a main target for a reduction in private car dependencies, and will change the travel behavior of the residents.

Figure 5. The condition of Yogyakarta City main area and some surrounding KAMPUNGS (private collection)

![Figure 5](image)

Figure 6. The condition of land uses in Yogyakarta City based on wards (Yogyakarta City in Figures, 2007)

![Figure 6](image)

Figure 7. Numbers of vehicles in Yogyakarta City (Yogyakarta City in Figures, 2007)

![Figure 7](image)
The consideration of city size and access, aimed at providing as many daily needs as possibly within minutes of most habitations. Consequently, it is necessary to consider certain city attributes in order to determine a more manageable city where a certain population, activities, and the physical pattern of the city work together in harmony. Yogyakarta City itself has an area that is very reachable with easy access, even from surrounding areas (some wards of surrounding neighbor regions). The position of Yogyakarta City is in the center of the region of Yogyakarta Special Region Province, precisely in the central southern part of Java Island. Inspire of it is the smallest area in the region, but Yogyakarta City is acknowledged as a center of trendsetter of the region, even in Indonesia. That is why although Yogyakarta City population is just 400 thousands bit more, but actually in daily activities, this area should be considered larger and then generates its population numbers double, almost one million peoples. This sprawling Yogyakarta City or Yogyakarta "Metropolitan" Area (see Figure 8) is very crowded with various famous activities, from culture, education, tourism, creative industry, service, and commercial.

Making compactness in Yogyakarta City, from viewpoint of city size should firstly consider how the city is able to facilitate all activities, including pulling population to live in the city area. Population reasonably lives in the sprawl area triggered by some causes. Besides of lifestyle including social segregation, the main problem may actually be caused by both misinterpretation and mismanagement conditions of kampung as main (inner) structure of the city. As a misinterpretation stated by Setiawan (2003) that kampung as informal settlement is seen by people including official government as a traditional form of housing or urban elements that represents a temporary solution for urban settlement problem. Furthermore, as further strong relation, it also put a mismanagement to let kampung development as second priority of development after suburban areas (formal sector settlement) where assumptions of benefited direct economy exist. In this context, related to city size consideration, the existence of kampung as close settlements that support directly urban activities and its program to bring such compactness development program back to the site become crucial to apply.

Moreover, if we examine the social welfare target in Yogyakarta City, composition among welfare groups in the city is still dominated by higher welfare group (welfare III), followed by lower welfare (welfare I) and middle welfare (welfare II) respectively. As illustrated in Figure 9, there is increasing welfare condition for middle and higher welfare groups, including welfare plus group that is the highest group of welfare groups, during 2004 to 2006. At the same time, there is decreasing welfare condition for lower welfare. Despite it can be seen as economic improvement of higher welfare groups, but in the lower groups there is actual worsened condition. The pre welfare group in which the poorest group categorized and in the lower welfare group in which the lowest category of welfare, obtained significant decreases to perform better condition of social welfare in 2006. Since one benefit that the compact city claims to have is to promote the increased quality of life for residents, the implementation of compactness development in Yogyakarta City actually should be closely connected to social equity, with a focus on quality of life, represented not only by equitable access to urban facilities, but also social and economic welfare, including space allocation in the kampungs.
Indeed, the compactness development in Yogyakarta City is still far from a realization. It has just blossomed as an idea or in the beginning step of formalization of a model. It will need a long term process of development and needs to be dynamic and interactive model. This paper furthermore tries to introduce a compactness development model in Yogyakarta City with its kampung as main orientation as more bit discussed above. Inevitably, type of compactness in kampung would be different compared to compactness models in developed countries, as drawn in Figure 10. Adopted from Hayashi (2003), there are three types of compactness, those are concentration type with vertical life concentration, cluster type within larger city size and divided into several administration areas, and homogenous type with similar developments through the areas. Urban compaction model in Yogyakarta City would be same as homogenous type, since almost there are no different characteristics among the kampungs in the city.

4. KAMPUNG ORIENTED DEVELOPMENT

As a result of above introduction and analysis, Kampung Oriented Development (KOD) is arranged as an idea of implementation for compactness development in Yogyakarta City. Basically it can be seen from two considerations. First, structurally kampung as described above has a significant role in broad range of dimension in the urban structure. The structure of kampung in inner city partial structure is also intentionally clear to state that kampung for this model of development might be a permanent solution, not a temporal solution.

Figure 11. Kampung Oriented Development (KOD) as continuation program of kampung improvement program

Second, historically kampung experiences with many schemes of development from many resources. Although it contains several weaknesses, Kampung Improvement Program (KIP) is widely known as a masterpiece of successful program in Indonesian kampungs. However, KIP is only focused on an infrastructure upgrading program for the kampung based on the needs of installation and improvement for roads, pathways, water supplies, drainage, and sanitation. Assumption that the idea of improvement of limited housing and infrastructure would also stimulate the improvement the socio-economic conditions in kampung community, should be reviewed again. In fact, as Setiawan (2003) indicated, these physical improvements also tend to be temporary. After several years, many of the improvements made under the programs have decayed and no further improvements are made by either the government or the communities.

Supporting this argument, the condition of many kampungs is getting worsened today, passing their optimum capacity of their environments, if viewed from their standard of quality of life (uncontrolled population density, lack of open space, environmental degradation, emerging many slum areas, and so forth). An urgency to redevelop kampung as further step in re-improvement of kampung condition as illustrated in Figure 11, becomes a realistic and an arguable idea.
Kampung Oriented Development (KOD) as shown in Figure 12 is systematically a strategic attempt through a comprehensive policy using kampung as focus area of development that encompasses several intensive developments based on characteristics of kampungs as integral part of urban structure (in Yogyakarta City, Indonesia), like transit oriented development, people oriented development, access oriented development, and activity oriented development. All of these developments are fundamentally framed by SOD, sustainable oriented development principles. Every single theme of development is dedicated to a specific characteristic of the kampung. For instance, access oriented development is purposed to open the kampung from outside positive networks. It would continuously supports kampung to get opportunities making improvements by "kampung" itself adequately.

Turn to spatial lay out, as recommended by Urban Task Force (2002) in forming urban structure from dispersed urban structure to the compact one (see Figure 13), Kampung Oriented Development (KOD) in Yogyakarta City is very possible to be divided into some units based on some scenarios: kampung administrative unit, kampung physical unit (based on spatial unit analysis), or kampung activity unit (see Figure 14). Basically, the difference of delivering sustainable communities in kampung is that a new development should be integrated step by step within community participation context. It is true that a culture consideration should also be particularly taken into account of sustainability concept in the developing countries, besides of environment, social, and economic considerations as suggested by common definition of sustainability (see for example Wheeler, 1996). For example, vertical living as a consequent effect of compactness development in developed countries should meet another suitable alternative models or approaches if it is implied in developing countries where vertical lifestyle reasons have not socialized properly yet.

Finally, as illustrated in Figure 15, kampung conditions in one hand offer some potentials and challenges, such as higher density with a compact social community interaction, mixed use between dwelling and non dwelling land. In the other hand, many aspects should be considered and involved if compactness may be implemented, such as choices in public transport intensification, scenario to strengthen socio-economic of the community by development approach, and other relevant strategies. Moreover, it is necessary to firstly measure compactness attributes and its indicators in the kampungs, besides more deeply discussion on the kampungs. After that, making a model based on comprehensive data set of the kampungs, both by simulation or real initiative development would be clearly describe possibilities of compactness development in Yogyakarta City as a representation of developing countries’ city.

Figure 15. Actual conditions of kampung in Yogyakarta City. It comprises challenges and potentials.

5. CONCLUDING REMARKS
Firstly, this paper has worked to examine potentials and challenges of compactness development in developing countries. Some prepositions using a case study in Yogyakarta City and its related data were also reviewed based on compactness attributes discussions. Those compactness attributes respectively are population densification, activity concentration, public transport intensification, certain city size and access consideration, social economic welfare target in the city areas, and finally, a development process to deliver compactness condition.
In the context of Indonesian urbanism, it is common as considerable beliefs that kampung is an integral part of urban structure in Indonesian cities and takes direct rule substantially in the process of urban development. Kampung also represents a dynamic process with a cohesive socio-culture of community in the developing worlds. In this relation, kampung as an important space unit for social, economy, and physical entity in Indonesian cities have revisited to find a possible model for compact city development in Indonesia.

Finally, Kampung Oriented Development (KOD) of Yogyakarta City in the last part of this paper has been introduced as important approach for compact city development model in Indonesian cities. It is systematically a strategic attempt through a comprehensive policy using kampung as focus area of development that encompasses several intensive developments based on characteristics of kampung as integral part of urban structure. However, some works should be worked to follow this concept up into realization, such as measuring compactness attributes, simulating the results, as well as taking a pilot project in the case study area. These further works will generate more meaningful attempts toward a compactness condition in developing countries.

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