

Latar as the Central Point of Houses Group Unit: Identifiability for Spatial Structure in Kasongan, Yogyakarta, Indonesia

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Abstract—The massive spatial expansion of the city into the rural area in recent decades has caused such problems as related to the spatial exploitation in villages surrounding. This raises a question of whether the open space change into land coverage building may have a spatial structure implication on settlement growth and evolution process in the villages surrounding. This paper reports a case study of Kasongan village in Bantul regency, Yogyakarta, Indonesia in between 1973-2010 in which the problem refers to the discussion of spatial structure is rarely addressed especially in village's settlement growth and evolution analysis. The bound axis which consists of 4 (four) quadrants and one intersection refers to the reference axes in a Cartesian Coordinate System (CCS) is used to analyze the setting of the houses group unit around 4 areas/ quadrants. Through such spatial process analysis by means spatial structure approach, the continuity of *latar* (yard), in the central of houses group unit is detected. There is finding from this research that the *latar* which exists in 'the central point' of houses group unit in Kasongan during 4 decades significantly becomes the prominent factor of the basic spatial structure. It composes the houses group unit in Kasongan.

Keywords—*Latar*, Houses Group Unit, Spatial Structure, Kasongan

Abstrak—*Perluasan ruang kota secara masif ke daerah perdesaan dalam beberapa dekade belakangan ini telah menyebabkan berbagai masalah terkait dengan eksploitasi ruang di desa-desa pinggiran kota. Hal ini menimbulkan pertanyaan apakah perubahan ruang terbuka menjadi ruang terbangun tersebut akan berimplikasi pada struktur keruangan yang ada seiring terjadinya proses perkembangan dan evolusi permukiman desa-desa pinggiran kota. Penelitian ini mengambil studi kasus desa Kasongan, Kabupaten Bantul, Yogyakarta, Indonesia pada periode waktu 1973-2010 di mana masalah yang mengarah pada diskusi tentang struktur keruangan masih sangat jarang dilakukan khususnya terkait dengan perkembangan dan evolusi permukiman desa. Penelitian ini dilakukan menggunakan 4 kuadran yang dibentuk oleh perpotongan garis tegak lurus yang dikenal dalam Sistem Koordinat Cartesian/ Cartesian Coordinate System (CCS). Penggunaan CCS ini untuk membantu menganalisis setting unit kelompok rumah terkait dengan sebaran letaknya dalam 4 kuadran yang ada. Melalui proses analisis keruangan khususnya melalui pendekatan struktur keruangan diketahui adanya kemenerusan keberadaan *latar* yang terletak di pusat unit kelompok rumah. Temuan penelitian ini adalah bahwa *latar* yang ada di 'titik pusat' unit kelompok rumah selama lebih dari 4 dekade merupakan faktor penting di dalam struktur keruangan yang membentuk unit kelompok rumah di Kasongan.*

Kata Kunci—*Latar*, Unit Kelompok Rumah, Struktur Keruangan, Kasongan

I. INTRODUCTION

Most rural in Indonesia recently have showed the transformation process in terms of spatial which has influenced to the change of the quality of living space. This phenomenon cannot be stood apart from the expansion of city development which evidently has stretched to the rural area. It seems that most cities are now losing their gravitational pull. Among others there are some reasons behind this phenomenon. The first reason is the advent of the automobiles (such as car, motorcar and public transportation) which have literally exploded into countryside as viscous blobs on a skein of strands spreading outward from the center city as the loci of concentrated human interaction. The second reason is the urban population growth which resulted a problem of space for living. Among some other major cities in Indonesia mainly in Java, Yogyakarta also faces urban population growth which was beginning in 1930 which resulted lack of space for living. It can be illustrated that in 1930 the territory of Yogyakarta was 16.7 square kilometers with total population was 136,649 and in

1960 had reached around 32.5 square kilometers contained more than 312,698 people. Meanwhile in 1990 the total population was 1,294,056 within the area of 470 square kilometers and in prediction it will increase almost 2,400,000 people in 2019. In Bantul regency where Kasongan district lies the total population will increase from 870,000 in 1990 into 1,100,000 people in 2019 [1]. Meanwhile it is noted that in 2012 the population in Bantul had reached 910,572 people in the area of 506.85 square kilometers where the densely populated with roughly 1,910 people per square kilometer [2].

According to those above data, it is clear that the urban sprawl has occurred in Yogyakarta which was followed by the exploitation of rural area of Yogyakarta where some potential-districts tend to become a 'new center'. In fact, it is followed by spatial area changing as well as the decreased population active in agriculture. It is accordingly followed by the decreasing of farm land in line with the development activities of housing, campus, shopping and industrial estate to include employment centers. These tendencies may become a key point to understand the basic idea behind the population flows toward rural regions. The all illustrations above may inform that our cities are now spreading out and even have 'leached out' and it would seem to encompass and to infiltrate far more and more of the rural and

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wilderness countryside which refers to harmful impact. This impact certainly refers to the spatial pattern change in rural area. As local people have not been spatially prepared well in responding the spatial pattern change -- mainly in terms of what should be continuously conserved--, it was accordingly leading to create a threat of physical and spatial availability in providing a better living space in rural area.

Some studies related to the focus of morphology has been conducted which refer to the unique houses group unit meanwhile the research that was used Kasongan as the locus of study has also been conducted. Among others Suparman [3] analyses of Design Guideline of Masses Arrangement in the Spatial Setback Usage as the Effect of Building Expansion in Kasongan meanwhile Utami [4] conducted the study of morphology in Sub District of Malioboro. Different from those studies above, this research refers to Identifiability for Spatial Structure in Kasongan which is rarely addressed especially in rural's settlement growth and evolution analysis.

It is known that in one side the existence of rural area is directed to keep inbalance between urban development and surrounding open space. Yet on the other side, it is also known that the sporadic expansion of the greater or major city will cause the absence of human scale. From the discussion above, clearly that the problem in relation to the spatial change of rural area is not only in the problem of land conversion but also the problem of demographic structure which relates to the space for living. This paper reports a case study of Kasongan district in Bantul regency Yogyakarta, Indonesia in between 1973-2010 in which the problem refers to the discussion of spatial structure which is focused in settlement growth and spatial setting evolution analysis. By examining certain case in Kasongan which was alternated by the earthquake in 2006, the spatial structure can be clarified regarding the spatial transformation process of the settlement.

The study is aimed to see the basic element of the spatial structure of houses group unit in Kasongan through exploring the evolution and growth of the houses from spatial point of view, especially it refers to the explicit rules in the space system in Kasongan. To do so, this research is directed to find out the determinant factors of the spatial structure of houses group unit in Kasongan during its growth (1973-2010). This aim of the research as previous mentioned, is also directed to retain the spatial structure of houses group unit in Kasongan against the sporadic expansion of the major city which will cause the absence of human scale.

Kasongan is located in Bantul regency lies about 7 kilometers south of Yogyakarta. This village is on the area of 36.70 hectares in 1998, and it was expanded into 43.82 hectares in 2000 while 23.4 percent of its are was farmland area. In 2010 the area was 105 hectares and inhabited by 1,170 of people lives in this district and they live in a group of houses within kinship group based (Figure 1). Most of its inhabitants are Javanese that 64 percent of them belong to pottery handicraft.

In this research 2 (two) theories refer to Trancik in Suparman [3] and Utami [6] are used to clarify the morphology and spatial structure of houses group unit in Kasongan as figure ground and place theory. The goal of

the usage of those theories is directed to see the basic element in compositional division of space of the houses group unit.

A. Figure Ground Theory

The figure theory of urban design and urban morphology is based upon the usage of figure ground studies. Trancik in Suparman [3] mentioned, the figure-ground theory is founded on the study of the relative land coverage of buildings as solid mass/ 'm' ("figure" or buildings) to open voids/ spaces/ 's' ("ground" or parks, streets, squares). Each urban environment has an existing pattern of solids and voids, and the figure-ground approach to spatial design is an attempt to clarify the structure of urban spaces and the generic patterns of mass and voids in a district. He also added that, the figure-ground drawing -a two-dimensional abstraction in plan view- is a graphic tool in revealing this relationship (Figure 2).

A predominant "field" of solids and voids creates the urban fabric. Meanwhile both masses (m)/ spaces (s) together with a linier space which appears as a path/ 'p' becomes a part or elements of Built Environment. The figure-ground approach to spatial design is an attempt to manipulate the solid-void relationships by adding to, subtracting from, or changing the physical geometry of the pattern. The figure-ground drawing is a graphic tool for illustrating mass-void relationships; a two-dimensional abstraction in a plan view that clarifies the structure and order of spatial setting in cluster of buildings (group forms).

B. Place Theory

Trancik in Suparman [3] and Utami [4] examined the place theory goes one step beyond figure-ground in that it adds the components of human needs and cultural, historical and natural contexts. It gives physical space additional richness by incorporating unique forms and details indigenous to its setting. In place theory (1) social and cultural values, (2) visual perceptions of users, and (3) an individual control over the immediate public environment are important principles. Each of these approaches has its own values, but are interrelated. Combining the two, it can give a comprehensive evaluation on various facets of a particular structures within a built environment - the mass-void relationship. The place theory adds the components of human needs and cultural, historical, and natural contexts. Advocates of the place theory give physical space additional richness by incorporating unique forms and details indigenous to its setting.

II. METHOD

The morphological analysis is conducted to uncover the spatial structure of houses group unit in Kasongan in the 'old' time (1973) until now (2010s).

As Gilliland and Gauthier [5] (see also Urban Morphology in http://en.wikipedia.org/wiki/Urban_morphology) the morphological analysis is the study of the form of human settlements and the process of their formation and transformation. The form of human settlements appear as the figure ground. The morphological analysis seeks to understand the spatial structure and character of among others is village by

examining the patterns of its component parts and the process of its development which the figure ground. This can involve the analysis of physical structures at different scales as well as patterns of movement, land use, ownership or control and occupation. Typically, analysis of physical form focuses on street pattern, lot (or, in the UK, plot) pattern and building pattern, sometimes referred to collectively as urban grain. Analysis of specific settlements is usually undertaken using cartographic sources and the process of development is deduced from comparison of historic maps.

To do so, the data of spatial setting pattern of houses group unit should be collected from the beginning of Kasongan in 1970's as a pottery rural district to see the initial spatial pattern and it is continued to be explored in 1989 and 1996 as the particular milestone of growth era of pottery business in Kasongan. Meanwhile the earthquake which was hit Kasongan in 2006 became a critical situation where the proper continuity of spatial development has been disturbed. The exploration process was proceeded until 2010 to verify the process of change and continuity of spatial pattern particularly after the earthquake which was occurred in 2006 that may own particular influence the spatial structure of houses group unit. The bound axis which consists of 4 (four) quadrants and one intersection refers to the reference axes in a Cartesian Coordinate System (CCS). As the morphological analysis resulted the physical structures of houses group units which refers to the figure ground, so it should plotted in 4 (four) quadrants in a Cartesian Coordinate System (CCS) to be further analyzed by the process of the development of houses group unit's physical structures. The quadrant refers to the reference axes in the CCS, designated *first*, *second*, *third*, and *fourth*, counting counterclockwise from the area in which both coordinates are positive [6]. Three cases of houses group unit consist of 82 houses within 3 (three) kinships group were selected as the cases study. The three cases were selected based on the index of place where the houses group unit is located at the road nearby consists of three indexes as index '0'/ Case 1 (major road); index '1'/ Case 2 (minor road) and index '2'/ Case 3 (sub-minor road) (Figure 3 and 4).

III. RESULTS AND DISCUSSION

Kasongan district which was developed in 1970 constituted the mark of the beginning of socio-cultural life change since local people have been getting in touch with the new comers. In Kasongan, the new comers create a mixture of community issues which means the relation between local people as a host community and new comers.

Before 1970s the people in Kasongan were making the pottery in kinship group based that the member contained 3 to 5 families. This kinship group was using *latar* (an open area/ yard around a building) as a communal space for the activity of producing the pottery. The kinship group in Kasongan as a community at the beginning is noted by a houses group unit inhabited by kinship members. The process of houses development in kinship system was gradually occurred from 1973 to 2010 which was denoted by distribution of group of houses in Kasongan by kinship based. The

spatial distribution of land coverage of solid masses and open voids in Kasongan in between 1973 to 2010 which illustrated by the figure ground drawing showed the scattered setting of buildings and the dynamic area as well in terms of building development (Figure 5).

Based on the figure ground drawing, it is showed that the total addition of the new buildings in each houses group unit was very significant. It is also noticed that there was a tendency to provide the open space of each houses group unit in Kasongan. Obviously, the open space was intended to be the place especially for burning the pottery (*'tungku ladang'*) based on their ancestor tradition (Figure 6).

In line with the influence of modernization, local people must think about how to provide a 'modern' tool instead of the conventional pottery burning system (*'tungku ladang'*). It seems that the *tobong* (oven) becomes the right tool to assist their work in producing the pottery. This *tobong* not only be able to reduce of time consuming in burning process, but it is also more efficient since it is only involving several people to carry out the whole process of pottery sculpture.

At last, the *latar* in houses group unit nearby becomes the vacant from burning of pottery activities. The earthquake which was hit Kasongan in 2006 became a significant opportunity to see the role of the *latar* in structuring the houses group unit whether it should be conserved or not in the process of re-development after the quake. According to the observation after the disaster in 2006, there was 39 % of total buildings to include the *tobong* were demolished and 24 % of total buildings were moderate damaged. Meanwhile 28 % of total buildings were minor in damaged (Figure 7). If we notice the morphology of Case 2 in 2006 (Figure 5), it can be noticed that there was the fact that the houses group unit became break into pieces which is indicated by the solid of masses became scattered. Meanwhile, the continuity in providing *latar* was occurred in 2010 (Figure 8).

It is noteworthy that in 2010 which means 4 (four) years after the earthquake, in fact people tend to redevelop their houses and to construct the *tobong* as well. This re-development mission is intended to construct and fixed up of infra-structure and to presence of their houses for living and working as before in line with the achievement of its pottery handicraft business, in recent decades. At the same time, it can be noticed by the fact that many addition buildings also emerged at the *latar* in order to provide such space as showrooms and workshop area. Yet, the *latar* is still remained till up 2012 (Figure 9).

It is clear here that the attractive phenomena occurred in Kasongan is the existence of *latar* as the front yard of each houses group unit. Moreover, the presence of *latar* is unique since it remains no logical reason behind its existence since the *tobong* has been replaced the role of *latar* for the place in burning the pottery (*tungku ladang*). As it is mentioned in preceding discussion, based on its history, most of houses in Kasongan set up a houses group unit which was initially (in 1973) having a small group consisted of 1-4 houses in the site land. Due to the growth of family members, many new houses were built in the same site land along more than 40 years afterward. It is notable that there is a consistency of

maintaining the *latar* along 40 years. It becomes important to be analyzed since it may become the prominent space of the houses group unit. (Figure 8.).

To convince the continuity of the *latar* as a prominent space, its existence should be analyzed using the three cases of houses group unit based on the index of place (Figure 3).

The analysis is focused on the position of the *latar* which composes the houses group unit around 4 areas/quadrants and one intersection. The bound axis is placed in CCS by moved closer to the 'wall' of initial house of each houses group unit in 1973 (Figure 8).

The massive development of houses occurred in Kasongan introduced a particular setting of physical structure of houses. Based on the process of houses development in 5 (five) notable years as 1973, 1989, 1996, 2006 and 2010, its process was occurred properly. Meanwhile there was a special morphological pattern of Case 2 which refers to the fragmented solid masses when the earthquake occurred in Kasongan in 2006 (Figure 8). But, the development process of houses along 40 years (1973-2010) in those three cases explain about the structure of space without destroying the basic spatial structure and contributing the un-loss of viable open space. Furthermore, the basic spatial structure of the houses group unit in Kasongan can be noticed by observing such element of houses group unit as solid masses and open void which is described in Figure 8.

Based on the data of spatial distribution using the figure-ground drawing and the usage of bound axis which consist of 4 (four) quadrant refers to CCS, it is known the total distribution of buildings on each quadrant refers to the notable year of data collection (Table 1). Meanwhile, the Figure 8 illustrates the addition houses on each quadrant by chart to see the change of total houses unit based on the notable years.

It is noted that the addition of new buildings of the 3 (three) cases along the years of 1973 to 2010 were very various, but the only quadrant III show up the speed of additional houses was very slow which refers to the total of additional houses only 4 (four) buildings along nearly 40 years. The pattern of total additional houses of three cases in 2010 of quadrant I and quadrant III which are located at a slanting line tend to be the similar except for the case 3 which the total of houses become 11. Meanwhile there are not a particular additional houses pattern in quadrant II and IV which the range of the total houses was various from 0 to 16 houses (Tabel 1 and Figure 10).

The fact of additional houses pattern in quadrant III is interesting to be noticed since the tendency of additional houses was consistent to be a small number as 4 (four) buildings moreover the structuring of *latar* which is located at the center point of cross line (bound axis) of the quadrant in those three cases was also established. The process of the structuring of open space actually has been taking place since 1973 when the premier house of their grand-parents was built and it was continued until 2010 (Figure 13). By this fact, it is known that the quadrant III becomes the area which constitutes as an avoiding space for adding the new house simultaneously to provide an *latar* in this quadrant. Meanwhile the quadrant I, II and IV constitute the area for providing the new houses to be placed.

By product those *latars* which have been referring to the appropriation of private space but it can be a space for public expression. It becomes a 'collective space' which is antithetical to incorporate the chest beating communalism of Kasongan way. Nowadays (2012), it is easy to find a private activities which refers to such life-cycle commemoration as circumcision and wedding celebration which involving community members nearby using the *latar* for the commemorations where the neighbors within the community can join the commemorations (Figure 12).

On such situation as Trancik in Utami [4] mentioned in his 'Place Theory' which contains figure-ground and linkage theories, the *latar* in Kasongan own a significant role as components of human needs and cultural, historical and natural contexts. The community in Kasongan as a symbolic space of collectively shared beliefs has been re-emerged within the *latar*. It means that within the *latar*, they conscious that they should be lived together put in order. As Subroto [7] it relates to do co-operate activity in many modes of social activity. It seems that they aware that they wish to be communal in a social context, getting together in a physical presence with each other is more fundamental than any recourse to some idealistic representations of group solidarity. It is occurred more vitalized and substantial co-operative within the *latars*. In short, the house yard which is represented by the *latar* as focal points (elements) of Kasongan has set up spatial structure of the houses group unit. This discussion leads to understand that the basic element of spatial structure in the houses group unit is the *latar* which is located at the center of the houses group unit.

In fact the house yard as a *latar* still exists till up now (2012) though the presence of additional buildings as a workshop or showroom of pottery are also developed. The focal point of this *latar* is important to be a sign to identify the place and space. It is noteworthy that people are apprehensive about the unclear spatial pattern and morphology of their living environment, when there are not orderly spatial pattern. The *latar* is also intended to avoid the sporadic development, superimposed on a web land-use of would seem formless, without discernable structure, without logic in such that the condition astonishes and confuses of both residents and visitors which generates chaotic where the anomic social order is will not be occurred.

The preceding discussion drives us to understand that the focal point that should be conserved in Kasongan district is the availability of *latar* that refers to the existence of the house yard. The effect of the lost *latar* cannot be judged without reference to social conditions, neither can the quality of life be deduced solely from social conditions without reference to the spatial setting. The existence of *latar* in Kasongan then is necessary for advantage of retaining, for the benefit of the population itself and the increment of increased value of land created by a growing and prospering community. The spatial structure which is shaped by the axle lines and the *latar* exists in the houses group unit is embedded by the residents' cognition to influence their activities which constructed the spatial pattern within spatial structure of the houses group unit.

IV. CONCLUSION

Arising from this paper is known that considering the structuring of spatial process analysis, the spatial structure is to be constant. The spatial structure which is composed by the *latar* is not a coincidence but because it was 'forced' to be provided in such a way, due to the original by plot and spatial configuration. These appear to be related to extensive orientation of people by the existence of the *latar* which affected the spatial pattern and structure. This spatial structure translated into spatial configurations where some functions were affected by the particular position of the *latar* in the houses group unit. It was clearly showed into the fact that the *latar* which has been investigated in Kasongan in the year 1973 to 2010 results in the basic element of the spatial structure of the cluster of houses. The *latar* is also used for making up a continuous network of space. The spatial structure where the *latar* exists in Kasongan is met in settlement development process. The *latar* as the 'heart' of the houses group unit can order activities and events forms as a part of the spatial structure in Kasongan

which can accommodate the demands made upon the residents. This *latar* that composes a spatial structure becomes the factor which maintains the spatial structure of houses group unit which is used by the residents as a tool for self-control of the settlement space as outlines the living space.

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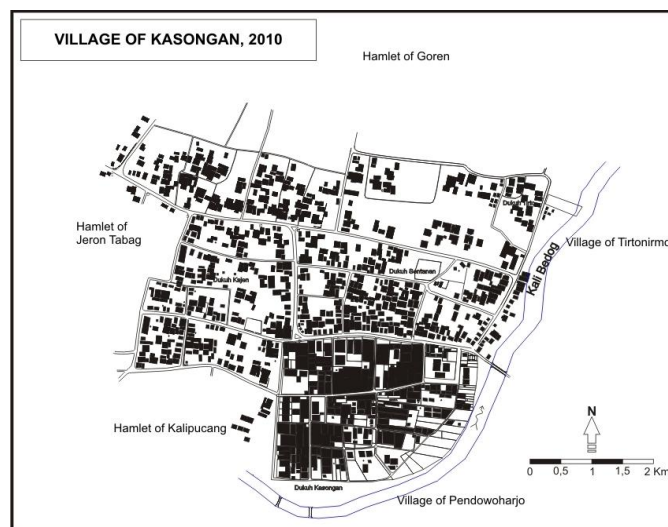


Figure 1. Village Plan of Kasongan 2010

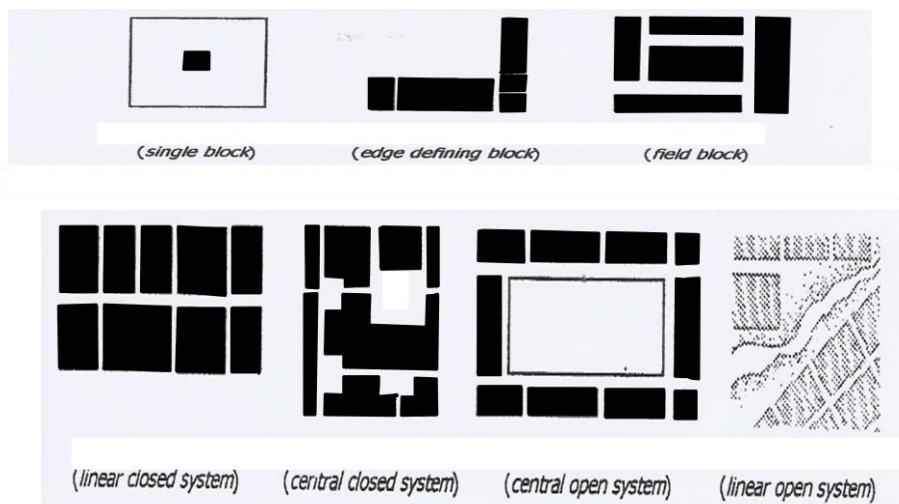


Figure 2. Three elements of solid (above) and four elements of void in figure theory developed by Trancik in [4]

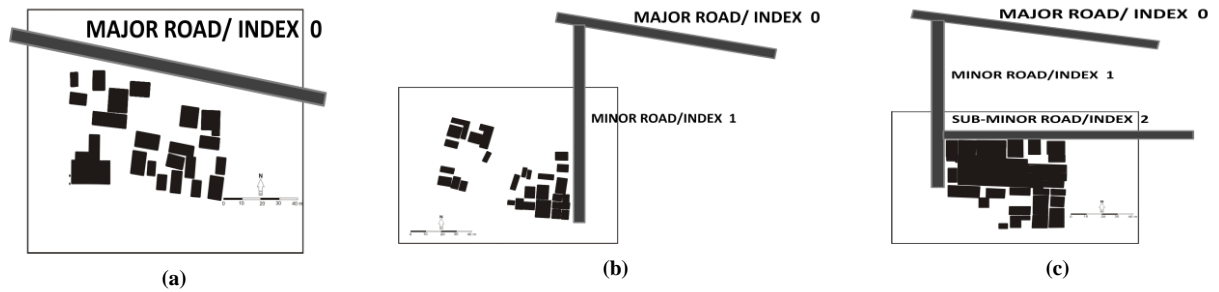


Figure 3. The position of 3 (three) houses group unit toward the hierarchy of road based on the index in 2010 (a) case 1, (b) case 2, and (c) case 3



Figure 4. Distribution of case study in Kasongan in 2010

Case	Year				
	1973	1989	1996	2006	2010
Case 1					
Case 2					
Case 3					

Figure 5. Transformation of setting of houses in Kinship Group Based (1973-2010)
Source: Survey 1998, 2006 and 2010



Figure 6. Conventional pottery burning system using open space ('tungku ladang') of the group unit houses in 2006



Figure 7. Situation of the ruins of *tobong* (oven) and space for workshop of pottery handicraft after the earthquake in 2006
Source: Survey, 2006

Case	Year				
	1973	1989	1996	2006	2010
Case 1					
Total House	QI:3 ; QII:2 ; QIII:0 ; QIV:0	QI:3 ; QII:4 ; QIII:0 ; QIV:2	QI:3 ; QII:4 ; QIII:0 ; QIV:5	QI:3 ; QII:5 ; QIII:3 ; QIV:5	QI:3 ; QII:5 ; QIII:3 ; QIV:12
Case 2					
Total House	QI:0 ; QII:2 ; QIII:0 ; QIV:0	QI:2 ; QII:5 ; QIII:0 ; QIV:2	QI:2 ; QII:5 ; QIII:0 ; QIV:7	QI:2 ; QII:4 ; QIII:2 ; QIV:11	QI:2 ; QII:7 ; QIII:4 ; QIV:16
Case 3					
Total House	QI:0 ; QII:1 ; QIII:0 ; QIV:0	QI:1 ; QII:2 ; QIII:1 ; QIV:1	QI:3 ; QII:5 ; QIII:1 ; QIV:5	QI:8 ; QII:7 ; QIII:1 ; QIV:6	QI:11 ; QII:9 ; QIII:1 ; QIV:9

Figure 8. The morphology of houses group unit in Kinship based at Kasongan on the basis of the notable year where the Latar continuously exists

Note: Q: Quadrant; ■ : house ; ■ : latar

Source: Analysis, 2012



Figure 9. *Latar* is available even though the expansion tendency of showrooms and workshop area toward front yard become a common phenomena in Kasongan in 2012

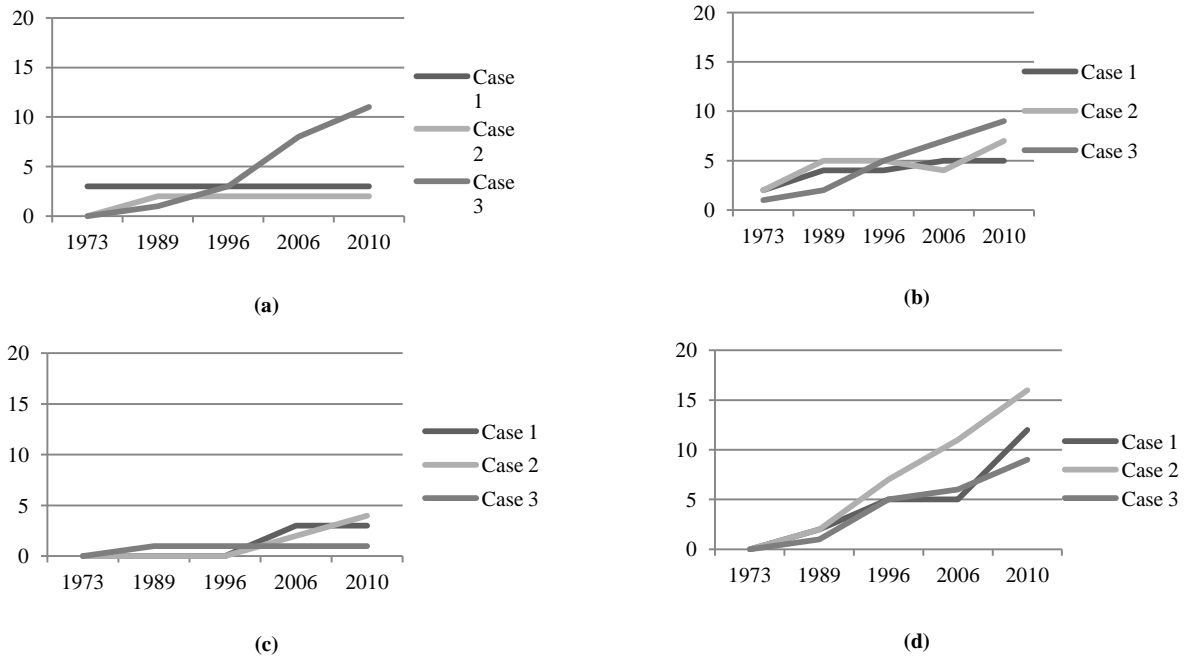


Figure 10. Change of total houses unit with the notable year based, in the group unit houses : (a) quadrant 1, (b) quadrant 2, (c) quadrant 3, and (d) quadrant 4

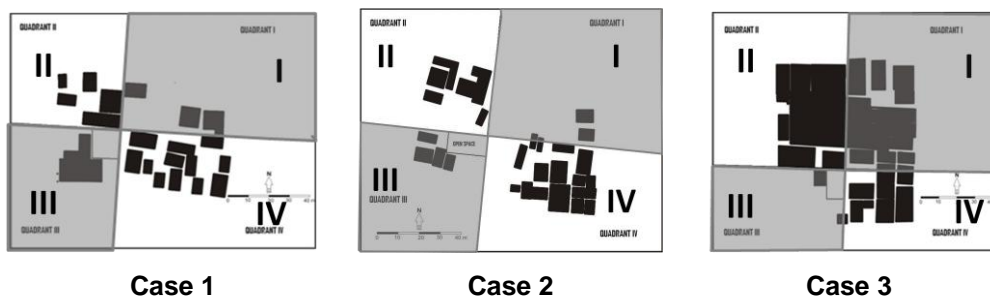


Figure 11. The houses distribution of each cluster on each quadrant in 2010



Figure 12. The circumcision commemorations using the *latar* of the group houses unit involving the neighbors nearby in Kasongan, 2012

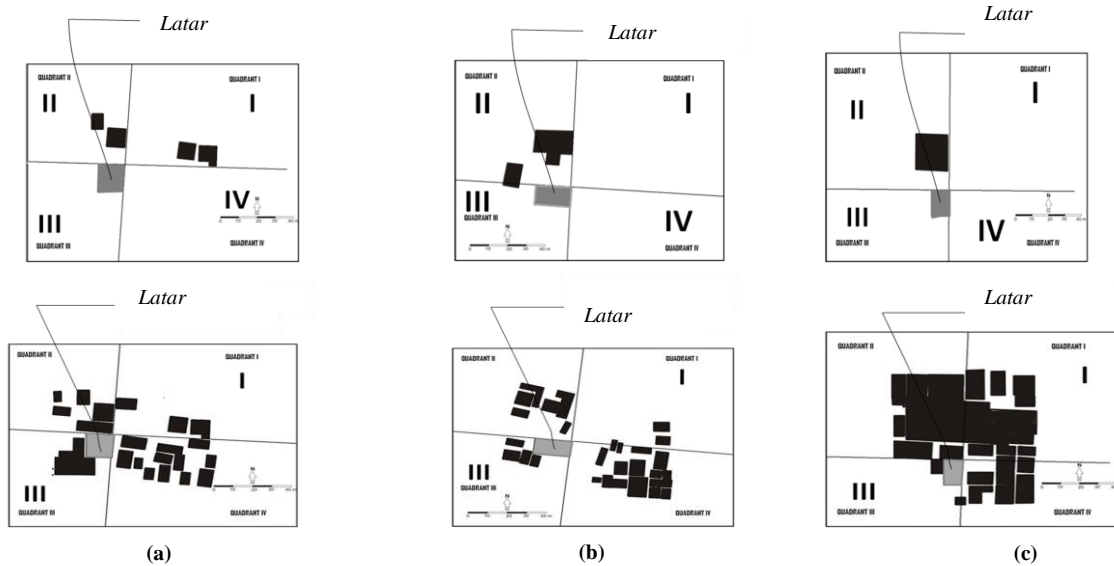


Figure 13. The existence of open space in quadrant 3 to be touching with the center point of the cross line in 1973 (above) and 2010 (below) : (a) case 1, (b) case 2, and (c) case 3

TABLE 1.
THE TOTAL HOUSES ON EACH QUADRANT OF THREE CASES WITH THE NOTABLE YEAR BASED

Quadrant	I					II					III					IV				
Year	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Case 1	3	3	3	3	3	2	4	4	5	5	0	0	0	3	3	0	2	5	5	12
Case 2	0	2	2	2	2	2	5	5	4	7	0	0	0	2	4	0	2	7	11	16
Case 3	0	1	3	8	11	1	2	5	7	9	0	1	1	1	1	0	1	5	6	9

Note: The Year of Data Collection : (a) 1973, (b) 1989, (c) 1996, (d) 2006, and (e) 2010

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