Implementation of Spatial Hybrid Concept in Sustainable City Growth in Urban Sprawl Periphery

Case Study: Border Area Surabaya with Sidoarjo Regency

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ABSTRACT
The growth of a city is closely related to population growth and urbanization process which will result in the increasingly difficult population to live in the city center. Intensive urban growth (inner city compaction) becomes less effective which results in extensive urban growth (out-of-town development). This situation triggered the acceleration of urban development towards the periphery. The city grew broader and seemed always unbounded. The strongest characteristic of suburban growth is sprawl growth. The growth process towards the outskirts of the city or Urban Sprawl has negative impacts (Polidoro, et al., 2011), among others uneven distribution of the population, decreased agricultural land area, the emergence of traffic congestion and discontinuity. Findings on how to overcome sprawl in the suburbs have been done, but still do not find the best solution to mitigate these negative impacts (Setioko, 2009).

The uniqueness of the suburbs is in relation to the dependence on the metropolitan centers (Deli Hudalah, et al 2007). The city center is understood as an established region with intensive growth (compaction). Centered compaction tends to be seen as one way to achieve sustainable urban forms (Stan A, 2013). On the other hand, rural areas already have a clear form of identity typically dominated by agricultural land. While urban-periphery is right between the city center and the rural areas with a vagueness of form. The above conditions indicate that the urban periphery is always viewed in a bad position, while in reality the existence of the border area from time to time still exist and survive against the existing conditions. This can lead to hypotheses as well as a new understanding that border areas can have meaning or positions as sustainable cities, although initially viewed as urban sprawl.

Sustainable urban development is defined as an effort to improve the quality of life of the city and its citizens without causing a burden for future generations due to the depletion of natural resources and environmental degradation (Urban 21, Global Conference in Berlin, July 2000). The concept of spatial hybrid (Gordon and Richardson, 1998) in detail can be indicated as a sustainable urban development that overcomes urban sprawl problems in urban periphery.

Specifically selected cases of Surabaya-Sidoarjo suburban areas as testing factors associated with suburban areas as the application of the concept of spatial hybrid that makes the periphery is still sustainable. The selection of border areas of Sidoarjo Regency with Surabaya City in this study because the readiness of the condition of the land there is more possible than the other Surabaya edge.

Keywords: Urban Sprawl, Urban Periphery, Spatial Hybrid, Sustainable Urban Development
I. BACKGROUND

The city always grows and develops along with the development of socio-cultural, economic and political life that became the basis of its background. The development of the city is a manifestation of the work of the construction of human thought both in the level of adaptation to the environment and from the side of the arrangement. The urban community with a certain background from the traditional to the modern lifestyle will affect the changes in urban formation (Tallo, et al., 2014).

The growth of a city is closely related to population growth and urbanization process. The growing population and urbanization will make it more difficult to live in the city center. Intensive urban growth (inner city compaction) becomes less effective which results in extensive urban growth (out-of-town development). This situation triggered the emergence of accelerated development of the city towards the periphery. The city grew broader and seemed always unbounded. The most powerful feature of peripheral growth is sprawl growth. Sprawl growth is present in both developed and developing countries. Various findings on how to overcome sprawl in the suburbs have been done, but still find no solution (Setioko, 2009).

The suburbs (Winarso, et al., 2015) have the definition of a transition zone located on the outskirts of the city edges. This transition zone has non-rigid, spreading boundaries and displays the diversity of dynamic land uses. The transition zone has a mix of rural and urban characteristics. The process of growing towards the suburb or Urban Sprawl, gives a negative impact. Negative impacts (Polidoro, et al., 2011) include uneven distribution of the population, deceased agricultural land area, the emergence of traffic congestion and discontinuity.

The peri-urban areas generally move away from the metropolitan core. Peri-urban becomes a term because it is characterized by the transformation of the socio-economic structure of much of the countryside into more urban activities, while creating both spatial work and segregation. Uneven development in suburban areas has the potential to create social conflict between communities. Suburban areas are usually not solid, it can also be defined as rural cities (Adell, 1999).

The above exposes reveal the uniqueness of the peri-urban in relation to the dependence on the metropolitan centers (Delik Hudalah, et al. 2007). The city center is understood as an established region with its intensive growth (compaction). Centered compaction tends to be seen as one way to achieve sustainable urban forms (Stan A., 2013). The New Urbanism movement asserts that "compact city" is the only model accepted as sustainable urban development. The consensus that a compact urban form is offered for a sustainable future (Williams and Burton, 1999). The city of the future is the place where something fragment will once be broken and then it is forming "recomposed" (Rosi, 1984). On the other hand the rural area is also a form of territory that is clearly the typical identity as the dominance of agricultural land. While the urban-periphery is right between the city center and the countryside with a vagueness of form (Atipikal). Urban periphery occupies the border area of the city which is seen as an instrument of social order that divides and regulates contacts between specific classes or groups (Gheorghiu Merklen, 2005).

Urban periphery is positioned on the condition of the worsening region due to sprawl. While another point of view, sprawling urban growth will be formal and become spatial hybridisation, (Gordon and Richardson, 1998). At the end of the decade of the twentieth century, the central term tends to fade as a concept of aligning with the new (Stan A., 2013). The conditions indicate that the periphery urban position is always viewed in a bad position, while in reality the existence of the border area from time to time still exist and survive against the problems. This subject can generate hypotheses as well as a new understanding that border areas can have meaning or position as sustainable urban development, although initially viewed as something bad due to urban sprawl.

Sustainable urban development is in principle consistent with the notion of sustainable development, where space perspective is focused on urban space. As stated in Urban Sustainability (Berlin 21, Global Conference in Berlin, July 2000), sustainable urban development is defined as an effort to improve the
quality of life of the city and its citizens without causing a burden for future generations due to the depletion of natural resources and environmental degradation. The concept of spatial hybrid (Gordon and Richardson, 1998) indirectly can be indicated as a form of sustainable urban development that overcomes the problem of urban sprawl in urban periphery. Specifically selected cases of suburbs of Surabaya-Sidoarjo as a test of the findings of parameters associated with the suburbs as a spatial hybrid concept that makes the periphery areas remain sustainable. Sidoarjo was chosen as the border area with Surabaya City, because the readiness of land conditions is more possible compared to the other Surabaya edge.

II. METHODS

The method of this research is descriptive research that is intended to describe the phenomena that exist and are underway at this time or the past. This study does not manipulate or alter the independent variables, but describes a condition as it is. The depiction of conditions can be individual or use numbers. Descriptive research, not only describes a situation only, but also describes the state in the stages of its development. Such research can be called developmental studies. In this developmental research there is a longitudinal or all the time and there is a cross sectional or in time pieces (Sukmadinata, 2007).

The first step in this study is to summarize the various literature on urban sprawl and urban periphery, yielding a summary of the findings of problems caused by urban sprawl in urban periphery. Subsequently investigated the phenomenon of field due to urban sprawl in case study of suburb of Surabaya and Sidoarjo. In addition to the findings of problems caused by urban sprawl in case studies, as well as sought possibility of positive findings, alleging that something bad due to urban sprawl in the field in fact the area still exist to survive. This is reinforced by the findings of libraries that support the reasons for the area still exist, namely the concept of spatial hybrid. So the purpose of this study is to get a specific model of urban suburb arrangement, which can contribute to urban planning process in the suburbs so as to remain sustainable.

III. RESULT

Definition of Urban Sprawl

The definition of urban Sprawl according to Slav and Nikivorof (2013) is an unplanned condition of urban development in the form of physical expansion processes and inefficient conditions including urban to surrounding countryside or natural land characterized by: a). Low density of new developments, patchwork, scattered forms, with a tendency to discontinuity, b). Different land use mixtures in urban activities, lack of good definition include developing centers of activity relating to public services and commerce, c). Not sufficiently covered by public transport services.

The first characteristic of urban sprawl is the physical extension of the urban to the surrounding area of rural land. In addition, another definition is suburban development with low density, patchwork, scattered forms, with a tendency to discontinuity. There is a difference in treatment between European and American researchers. Among American writers quoted here, only Galster et al. (2001) which states that expansion as a key element of this phenomenon. Chin (2002) finds that the term "expansion" is used to describe more to the compact form of Urban Sprawl especially in the early definitions of the 1950s and 1960s (Chin cited Diri, 1961, Gottmann and Harper 1967, Gottdiener, 1977, Hall, 1997).

The main factors causing urban sprawl Chin (2002) are: a). Population growth is a strong factor for increasing demand for housing. That is because of the lack of housing supply in the city center and the result of high housing construction on the outskirts, where more land is available (Chin, 2002), c). Residential preferences - a consensus among researchers that housing preferences is the main factor causing urban Sprawl. Housing options in the countryside are driven by higher income levels, increased personal mobility and improvements in transport. Audirac et.al. (1990) have concluded "Ideal having a home for a single family, a strong desire for privacy, and a rural atmosphere are the main reasons for choosing suburban and local exurban", c). The role of the market as a housing demand has been mentioned in terms of either population growth, or preference. Brueckner, 2000, Self, 1961, Audirac et al., 1990, and others analyzed urban Sprawls caused by consumer demand and other market-related factors.
City Dynamics and Metabolism

The urban growth trend is the radial expansion of the district center by a series of concentric circles (Burgess, 2008). Regardless this theory confirms that even more fundamental urban growth is expressed as a result of organization and disorganization of metabolic state of the city that can be measured by mobility. The new territory is characterized by hybridization and "parasitism".

Urban Growth Expansion

According to Stan A. (2013), there is partial overlap in urban dynamics, urban growth and urban expansion, with the worst case in urban most criticized urban Sprawl. This condition refers to the effects of disasters on the environment. Something of what is perceived as "urbanization" but is actually "suburbanization", and in the first stage, it is Sprawl. Judging through the growth of cities in the last period, urban morphology reflects this difference. The urban form coming from different levels can be referred to as "Implant" metabolism. Not all territorial dynamics lead to urban growth, and not all urban growth leads to Urban Sprawl. The Sprawl phenomenon is seen not only on the downside, but as part of urban growth, including urban development is a vision that can bring benefits in future urban planning.

Sprawl as a Process and Change of Urban Limits

Stan A. (2013) describes new areas of an urban border expansion, can not be simply understood, although the term from the periphery itself etymologically brings the boundary comprehension to the “peri” ending. The process of urban expansion and the emergence of the term periphery has been used in the era of postmodernism. This will speak fragmented culture, where the role of the limit is essentially different from the previous understanding. At the end of the decade of the twentieth century, the waning of the central term as a concept of alignment with the new. Understanding of territory as the number of unstable entities crossed boundaries that can not be defined in terms of coherence (Stan A, 2009). In urban studies often focusing on problem identification and articulation of solutions, the understanding of limits by contemporary intellectuals into discourses with many meanings and interpretations, has resonance in some overlapping urban discourse.

Compactness, Dispersion: Re-composition and Re-creation

The city of the future is the place where something fragment will once be broken and then it is forming "recomposed" (Rosi, 1984). The new theory on the New Urbanism movement asserts that "compact city" is the only model accepted as a sustainable city development. Suburban growth has a new role in spatial and functional differentiation to obtain mixed use, with common principles such as quality of life and urban sustainability. New Urbanism leads to a return to traditional model city organizations with a gradual transition from high density to low density centers for The suburbs became a very different model of conventional urban development, which focused on urban intensification. During the early 1990s, the compact urban policy derived from New Urbanism was largely undertaken by planners, particularly in Great Britain and throughout the Kingdom of Europe, Sustainable development " popularized by Brundtland (1987). At this stage there is a critical analysis, whether the compact city can fulfill its promises to provide sustainability value. As a result, a fierce debate over compact cities. Follow-up studies begin to show that benefit prediction does not occur as it should and does not reflect the harsh realities of economic demands of environmental sustainability and social expectations "(Elkin et al., 1991). While the other point of view, the widespread urban growth of Sprawls would be to formalize and be spatially hybridized (Gordon and Richardson, 1998).
The morphology and (Re) design of Urban Sprawl area

Stan A. (2013) describes that different morphological and spatial urban forms lead to the idea that urban expansion would be a kind of "laboratory" experiment of soil. More recent research has raised important issues about the complexity of urban environments, which can lead to urban intensification of policies to have consequences that are less suited to sustainable urban goals. The complexity of the expansion zone claims that instead of concentrating on one particular solution, there is a need to recognize that urban diversity tends to coexist in cities. City compaction is only seen as one way to achieve sustainable urban forms. Furthermore, the intensification policy is likely to be successful when adjusted to existing urban landscape from a particular environment. The recent literature does not propose urban sprawls, as the negative impact of sprawls appears to be widely recognized in public services and land acquisition. Some studies emphasize the complexity of the relationship between urban form, function and sustainability, with larger variables focusing on the functioning of the city and something that affects sustainability rather than just the pattern of its form. Sustainable City Forms, Williams, Jenks and Burton claim that "Recently there is some consensus that compact urban forms are offered for a sustainable future." (Williams and Burton, 1999). Peripheral development appears to be important and a responsible part of sustainability planning itself. It becomes (Re) the "design" of the city, in the environment and the community level. This has become an important consideration for creating a good urban environment, where landscape hybrids claim to be more complex approaches.

Hybrids Urban Sprawl Characteristics

According to Richard T. T. Forman and Michael Godron, landscaping is a heterogeneous field consisting of interacting clusters that are repeated in the overall form (Forman, 1986; Godron, 1998). Extrapolation of this relates to the ecological point of view, useful for understanding the phenomenon of expansion, the suburban urban landscape identified as "landscape composition", some of which are in opposition positions in terms of proportion and scale. Heterogeneity becomes an intense landscape in urban expansion into a short definition of hybrid. This is a concept that can be explained either by the dynamics of the patch in the landscape and the configuration patchwork structure. Landscape patches define the basic structure of the landscape and their quality affects the quality of the entire environment. Landscape is a condition of patchwork structure (mosaic) associated with the boundaries of the patch. This can be either continuous or discontinuous. Landscape hybrids are multilayer objects, work with systems, processes, dynamic mechanisms, which connect information. The characteristic hybrid character develops from purity, compromise and composite. Hybrids are coexistent spaces and places, transfusions, interconnections, ambivalences, and heterogeneity. The concept of hybridization is a real creative process, a combination that produces openness, flexibility, multiple views, and informal support (I. Stan, 2013).

Peri-Urban areas

Adell (1999) and graduate scholars have tried to define peri-urban areas, but no agreement has been reached. They generally agree that peri-urban districts are an area adjacent to urban growth, and are characterized by strong influence with urban activity, easy access to markets and urban-characteristic facilities. The
relationship between the city and the suburbs is a functional one, characterized by the flow of commuting from city to suburban area and vice versa (Caruso, 2005). Suburban areas are usually not densely defined and are defined as areas of transition between urban function use and rural use, this can also be defined as rural cities. The boundaries are not rigid, spreading and are often considered transitional zones. Traditionally, this transition zone features a dynamic diversity of land uses, mixed-labor work from rural-based employment to urban-based employees. They are also a mixed population zone with migrants, where most of the rural poor seek to find informal employment in generating income from some activities. Peri-urban is seen to have different characteristics in developed countries (north) and developing countries (south) (Woltjer, 2014). In developing countries, in the absence of mature planning regulations, the region is under increasing pressure in its development, and usually changes from previous rural activities to mixed with urban activities in land use. Some scholars have seen this process as part of metropolitanisation, expansion of metropolitan commodities and labor markets in rural farming rather than rural urbanization (Briggs & Mwamfupe, 2000; Ginsburg, Koppel & McGee, 1991; McGee, 1989). As cities in developing countries continue to grow, their suburbs tend to move outward in waves creating urban sprawls. In Asia, the extension of this area can reach as far as 300 km from the major cities, as shown by the peri-urban coast in China (Webster, 2002). This extension is certainly much larger than that of Africa, which usually falls within 30-50 km beyond the city limits.

Separation (Segregation) and Urbanization

Spatial segregation in urban areas implies the occupation of a plot of land by different social groups that are not homogeneously distributed. Instead, they group themselves according to their status, ethnicity, and origin. In a broader context, this is about the differentiation of housing or social division of space (Barbosa, 2001). Spatial segregation can also be interpreted as an unequal distribution of the urban population groups. This refers to the phenomenon that certain groups are high in numbers in certain areas of a city, but low in other areas. Therefore, spatial segregation is always associated with spatial concentrations of specific population groups (Bolt et al., 2006).

Characteristics of the Peri-Urban

According to the Organization for Economic Co-operation and Development (OECD) (2007) the term 'peri-urban' came into the public domain and use during the 1980s in Europe. OECD described suburbs as the name given to the 'gray area' which is not entirely urban or rural in the traditional sense. It is not entirely urbanized or completely rural, but is often seen as a 'Middle band' land with atypical characteristics (Buxton, 2007). It consists of an unbalanced mix of urban and rural functions. The suburbs function as zones where urban-rural interact at its peak (Johnson, 1974). In this zone, rural activities and way of life are retreating rapidly, with the widespread intrusion of urban land use.

Linkage of Suburban Areas and Physical Development

The dynamic and integrative nature of urban areas has been a major obstacle in outlining the physical development (land use) patterns of a region (Johnson, 1974). While peri-urban areas are interrelated with potential for change, the nature of physical development is complex and has no defined character. This is defined by unauthorized developments, spatial unit zones, non-contiguous developments and changes in land use (Johnson, 1974). Other authors argue that peri-urban areas are experiencing continuous improvement and are concerned about physical expansion as population growth (Buxton, 2007). In addition, literature on peri-urban dynamics suggests that as urban growth areas, most growth occurs on the periphery due to the availability of land at and also the nominal cost (O'Sullivan, 2000). Thus, peri-urban, with the virtues of their status as dormitory city, is dominated by the density of the medium and low housing development. Housing in the area is separated by a socio-economic class or ethnicity and usually clustered close to trains or major highways (Johnson, 1974). Another relationship is the development of leap frogging characterized by relatively low, noncontiguous density, dependent vehicles, housing and non-housing construction that consume agricultural land (Mather, 1989). Agricultural
land is converted into housing, commercial and industrial premises, and infrastructure such as roads, recreational facilities, landfills, and sewage treatment plants (Timms, 2006).

Social Border

Definition of the Social Border concept in the study approach is driven by the increasing attention to comparative studies and research with the concept of interdisciplinaires. The social boundaries are defined for the first time in the special literature of Lamont and V. Molnar. In the study of limits on Social Sciences, they define social boundaries as "a form of social inequality resulting from unequal access and symbolic resources and uneven distribution" (Lamont & Molnar, 2002, page 167). The analysis of the process of the formation of social boundaries has its origins in the works of classical sociologists. Durkheim and the difference between sacred and profane and Mr. Weber, who analyzed group status compared to ethnic groups (Gheorghiu, 2005, page 32). In the approach to defining the concept of the frontier, B. Moulin, distinguished in his book The City and Border (2001) three meanings of the term: - the boundary of the area that determines its size; - the boundary between the two countries which refers to the concept of national control and identity; - the boundary separator where the limit indicates the detachment, the desire to be single (p 36.). All these elements are the definition of social boundaries in specific literature by sociologist Dr. D. Gheorghiu in introducing Book analysis and intervention in social science (2005).

Using as a starting point the definition of social boundaries, the distinction between "inclusive" and "exclusive" between the ruler and the controlled, between the stable and marginal borders are the result of the process Social exclusion. The border is seen as "the instrument of the social order: dividing and regulating contact between classes, groups" (Gheorghiu-Merklen, 2011, p.33). Within a social group, they define the main features, have a hierarchy and define "insiders" from "outsiders", attributed to the exclusion of certain segments of the population. On the other hand, social boundaries allow the entry of those who are considered différents.

Borders and Identity in Urban Suburbs

Identity is one of the important directions of contemporary urban research. The exclusion and social segregation involved in the formation of community identity, investment and urban development, the environment is part of the process of implementing individual personal and social identity forms (Mata Barreiro, 2004, p 41). Personal Identity is associated with the individual as a unique person and maintains the subject's experience of feeling and is recognized with respect to others. Social identity is given by a set of objective characteristics that identify the individual from the outside. The fact that we see ourselves as members of a composed social group allows us to identify socially. Given the fact that an individual can have a "social identity repertoire" (Gender, nationality, age, professional category, cultural practices, etc.), social identity is defined as a set of groups with which an individual can identify. The goal dimension of identity, we mark the position of the subject in society and in the zone in which it operates (Catrina, 2010, p.46). The concept of social identity is common to many, it is the identity defined by the sense of the individual in the social group. In this case, R. Poledna that such an identity can be "built in a particular context and social climate" (Poledna, 2001, p 57). The social identity of the theory is based on Tajfel's research and then on Turner's people and shows that individuals seek to maintain or enhance self-esteem. Social groups or categories (and membership in these groups) linked to positive or negative connotations, will be positive or negative social identities based on an assessment of the group that contributes to the formation of an individual's social identity.

The Urban Sprawl Handling Movement

a. The History of New Urbanism development

New Urbanism is often referred to as Traditional Neighborhood Development (TND), neo-traditional planning, Transit-Oriented-Development (TOD) or Compact Development concept. This movement emerged in the 1980s as an alternative to the conventional development concepts existing in suburban United States settlements. Along with the socialization of this concept, in 1989 the Traditional Neighborhoods Foundation published a national version of TND planning standards
to be introduced to city councils. Then formed an organization known as Congress for the New Urbanism (CNU). At the fourth congress meeting in 1996, the congress participants agreed to create a New Urbanism Treaty containing principles, policies, guidelines and design techniques. This movement believes that the concept of neo-traditional planning can solve the housing problems in the suburbs that have existed as a result of conventional approaches. This neo-traditional concept refers to the characters of the old city in the United States, such as small plots, short or zero GSBs, houses with front porches, large public spaces, multi-functional land use, narrow and interconnected roads. Such characters are found in cities, such as Charleston, South Carolina, Old City Alexandria, Virginia and Marblehead, Massachusetts. This movement is also being developed in Europe, The Urban Villages Forum in the UK and The European Sustainable Cities Campaign in mainland Europe.

B. Principles of Planning and Design of New Urbanism

In general, the New Urbanism movement adheres to several planning principles for urban development, namely: 1. Restoration of urban centers and cities that exist within a single metropolitan area. 2. The re-establishment of irregular suburban settlement areas into a living community environment and multi-functional land use. 3. Conservation of the natural environment. 4. Preservation of artificial environment relics. 5. Land and resident use should vary within a community environment. 6. Pedestrians including public transport and cars should be designed within a community environment. 7. The city should be formed by a clear physical form and an easily accessible public space. 8. Urban areas should be shaped by architectural designs and landscapes that appreciate local history, climate, ecology, and development practices.

This movement also received some criticism, among others: 1. Focussing on things that seem physically and forget the things that are social, political and economic. 2. In fact, many real estate with the concept of TND is difficult to create multi-functional land use for the establishment of a community. In addition, some projects that implement the concept of TND can not achieve the original goal of being an inclusive housing but rather being exclusive housing only for the upper middle class, such as some real estate in Austin, Texas, Spring Hollow Farm, New Commerce Village, and City of the Immortals (Knack, 1989). 3. Consumers are not concerned with what is offered by the new urbanist but the conventional concept that is oriented to motor vehicles (C. Tu and J. Eppli, 1999). Consumers, especially the middle and upper class, are still interested in large plots, low density and single land functions. As for the developers of course for the benefit must meet this desire. Another obstacle is consumer concerns about security issues with the concept of the alley behind the house plot. 4. Traffic congestion is not reduced, otherwise it might create traffic jams, because theoretically close proximity reduces the average travel cost, the cheap travel costs tend to increase the number of trips and increase the total distance of the journey. In addition, one of the cases of a delayed TND project due to community opposition was the Lakeside housing on the outskirts of Dallas, Texas planned by Andres Duany and Elizabeth Plater-Zyberk in 1994. In this case, communities surrounding the Lakeside project objected to housing plans with High density ie 5-6 floor apartment. In their assumptions the apartment will lead to crime, violence, gangs, and ultimately lower property selling value in the surrounding area. Facing this criticism, New Urbanism figure Peter Calthorpe argues that "building a community is a 200-year phenomenon."

Other Urban Sprawl Handling Movements

According to Setioko (2009) research, in addition to new urbanism, other urban sprawl movements are among others the 70s decade came the concept of "new city" development in England. The "new city" philosophy is based on three main principles: 1) decentralization of the
already crowded area, 2) living independently, 3) balanced community between the employed and the resident.

Five elements of the term "new city" are: 1) Level of independence, 2) a balanced community, 3) diversity of land use patterns, 4) self-governing, 5) urban areas (Golany 1976: 26). For third world countries (Danisworo, 1984) offers a new concept of "new city". The concept, when viewed on a regional scale, serves as a policy instrument to tackle urbanization and on an urban scale is a catalyst for the gradual integration of the sociocultural culture of rural communities, from traditional rural communities to modern society. This concept offers a new alternative to traditional rural communities with no need to immigrate to a big city if they wish to become a modern society. Another concept is Transit Village, because in reality it is similar to TOD, it is often mixed up, but still has differences. The Transit Village is characterized by: 1) integrating with nature, 2) always close to the train line, not close to the bus/car line. Transit village has a building density of 12-60 units per acre house (TOD 7-15 units per acre house). The average occupancy is a quarter of a mile from the station. The center of the neighborhood is surrounded by civic and public space and the distance can be reached by walking for five minutes (Gilham, 2002: 184). Edges Cities is a concept popularized by Garreau in 1991, defined as the development of suburbs equipped with a major center of activity and a regional retail activity center. There was a shift that was once an industrial city-based economy, transformed into a municipal economy-based service deployment. Thus the suburbs change from rural areas to shopping and office areas. Garreau gives rise to five factors in the edges of cities: 1) more than 465,000 m² of office space; 2) a minimum retail trade area of 56,000 m²; 3) more workplaces than residential; 4) the residents should feel a "place"; 5) Edges cities unlike the cities 30 years ago (Calthorpe and Fulton, 2001: 2).

Similar approaches but with different names continue to emerge as: network city (Batten, 1995), postmodern city (Dear, 2000), city boundaries and compact cities (Jenks and Burgess, 2000; Holcombes, 1999). The various concepts of urban growth and the newly-funded city development strategy mentioned above are not able to stop the growth of urban sprawl in the periphery.

Sustainable Urban Development

The definition of sustainable urban development is in harmony with the understanding of sustainable development, where space perspective is focused on urban space. As stated in Urban Sustainability (Berlin 21, Global Conference in Berlin, July 2000), sustainable urban development is defined as an effort to improve the quality of life of the city and its citizens without causing a burden for future generations due to the depletion of natural resources and environmental degradation. In accordance with the characteristics of a city, sustainable urban development can be defined as an ongoing effort to improve the quality of life of urban residents through increased productivity in the secondary and tertiary sectors and the provision of viable urban infrastructure and facilities taking into account the impact of the invasion and intensification of built areas on environmental damage municipalities as well as require high urban involvement in efforts to conserve natural resources and control environmental quality degradation.

Graham Haughton and Colin Hunter (1994) emphasize three basic principles of sustainable urban development, namely: 1. The principle of intergenerational equity which is the principle of sustainable development with future orientation. 2. The principle of social justice in the gap of access and distribution of natural resources is intragenerated to reduce poverty considered as environmental degradation factors. 3. The principle of responsibility (transfrontier) that ensures a minimal geographical shift in environmental impacts with compensation efforts. In the urban context, it is expected that the utilization of natural resources will not occur and the decrease of environmental quality in areas outside the urban areas that have an excessive impact on the growth rate. The Indonesian Decentralized Environmental and Natural Resources Management Project (IDEN) and Urban and Regional Development Institute (URDI) workshop also proposed several principles of sustainable urban development in Indonesia, which are in line with those expressed by Graham Haughton et al.

The following principles need to be re-adapted to local conditions (Source: Appendix F, Workshop Materials, Strengthening Action for Sustainable Urban Development in Indonesia, Final Report on Preparation Stage Cooperation between IDEN and URDI, as well as
active participation from other related institutions/ parties, December 2004), namely: 1. Have a long-term vision, mission and strategy that is realized consistently and continuously through plans, programs, and budgets with participatory incentive-disincentive mechanisms. 2. Integrating economic growth efforts with the realization of social justice, environmental sustainability, community participation and cultural diversity. 3. Develop and strengthen cooperation and partnerships among stakeholders, inter-sectoral, and inter-regional. 4. Maintain, develop and use wisely local resources and gradually reduce dependence on outside resources (global) and non-renewable resources. 5. Minimize the ecological footprint of a city and maintain and even increase the local ecological carrying capacity. 6. Implement social justice and develop people's awareness of the environmentally friendly patterns of consumption and lifestyle for the benefit of future generations. 7. Provide a sense of security and protect the rights of the public. 8. Adequacy of justice. 9. Create a conducive climate that encourages people who learn to improve the quality of life on an ongoing basis. Related to the pillars of sustainable development, the concept of sustainable urban development is also based on four main pillars, namely the economic, social, and environmental dimensions supported by the pillars of governance.

IV. DISCUSSION

1. Suburban Surabaya Based on Surabaya Spatial Plan (RTRW) 2013, that Surabaya City can be translated into two areas that influence it, among others: Internal region: Surabaya is divided into 31 District. External areas: The external areas of Surabaya City have strong links in various aspects of the city life and livelihood are Gresik and Sidoarjo. The observable trend of development to date is that the three areas are almost physically integrated as well as from the economic side (agglomeration process). Thus growth and development of Surabaya City can not be separated from this external territory. The north and east sides of Surabaya City are adjacent to Madura Strait waters area, South side is bordered by Sidoarjo regency and West side borders Gresik regency.

The North side of Surabaya City is certainly not likely to be used for extensive urban development, as it is adjacent to the waters dominated by sea transportation functions. It is also designated as Military Area and Strategic Industrial Area. While East side of Surabaya City development is sluggish because it is bordered by East Coast waters area of Surabaya. This is increasingly sensitive to the plotting of green belt areas that serve as a conservation area. This conservation area is dominated by brackish water aquaculture and mangrove ecosystem. Of the two borders of Surabaya City with surrounding districts, the most significant development of the city is that towards the Sidoarjo regency. This is because Sidoarjo regency is topographically and the condition of the land is more accommodative for urban development especially housing. Accommodative land conditions are relatively flat, shallow and freshwater soils, paddy field conditions are quite fertile. While the borders in Gresik Regency have relative obstacles from the slightly contoured topography, the groundwater conditions are quite deep and brackish, and some of the land is salt aquaculture.

2. Sub-District of Sidoarjo Based on Spatial Plan (RTRW) of Sidoarjo Regency 2009. Sidoarjo Regency is a district enclosed by two rivers, Porong River and Surabaya River. The landscape of Sidoarjo regency, based on topographic configuration, slope angle, flow pattern and shape of embankment (relief) are terrain and bumpy terrain. The investigation of the slope of the area ranges from 5 - 15%. The terrain landscape is formed by the alluvial sedimentation process of the coast and river delta. The height of the terrain topography ranges from 4-10 meters above sea level, with a slope of between 0-10%. This landscape develops into urban areas, settlements, industry, rice fields and plantations. The bumpy landscape is located north of Sidoarjo with an altitude between 10 - 25 meters, with a slope of 5 - 10% or more. This landscape develops into residential and urban areas. The main rivers that flow along the seasons with the valleys are generally U-shaped, among others: Brantas and Porong River that flows eastward and empties into the Madura Strait. The river flow pattern formed on this plane is the Sub dendritic flow pattern.

Of the 18 districts in Sidoarjo regency, there are three districts adjacent to Surabaya City area. They are subdistricts Taman, Waru and Sedati, which on its growth have been very urban with a variety of land use. Residents on there perceptually feel live in Surabaya, whereas administratively located in Sidoarjo regency.
The growth of Surabaya City has penetrated in the sub-districts that are not directly adjacent to the administrative city of Surabaya.

The second layer of sub-districts (Sukodono and Gedangan) are in accordance with the so-called urban sprawl. The suitability of the characteristics of urban sprawl is partly due to the spreading urban growth, penetrating the agricultural land, there is a firm segregation between urban and rural communities that has the potential for social conflict.

So the conclusion is the suburbs that became the meeting of two regions, namely Surabaya and Sidoarjo, essentially divided into three zones. Zone 1 of the suburb of Surabaya, which is administratively adjacent to Sidoarjo Regency (Karangpilang, Jambangan, Gayungan, Wonocolo, Tenggillis Mejoyo and GunungAnyar) has urban characteristic. Zone 2 of the outskirts of Sidoarjo Regency bordering on Surabaya (Taman, Waru and Sedati) is urban. Zone 3 is the second-tier district of Sidoarjo from the edge (Sukodono and Gedangan) characterized by Urban-Village. These three zones are potential as the choice of case studies that exist in this study.

V. CONCLUSION

From the discussion above, it can be drawn some conclusions. Among them are: 1). The development of the city to the outside resulted in the occurrence of urban sprawl that has a variety of types and forms. This diversity is related to its location to the city and its pattern of population increase as well as the intensity of land use change. In parts of the region adjacent to the city, the character of the region will be more quickly turned into urban, let alone supported by the way of life and livelihood of the population who are also characterized by urban 2). In the case that occurred in the area adjacent to the main city of Sukodono and Gedangan sub-districts, the people living there felt as surabaya residents although living in the region of Sidoarjo. This happens because they can take advantage of almost all the city facilities provided by Surabaya compared to those provided by sidoarjo. 3). In relatively more distant areas of the main city, urban growth runs sporadically and spreads in disorder in land use patterns, distribution of support facilities and population density. In these areas there is often a lack of public infrastructure that local municipalities have not been able to provide. 4). When further examined, the implementation of the Spatial Hybrid concept for the peri-urban surabaya-sidoarjo has several developmental patterns that depend on several factors: distance to the city, the intensity of space utilization, the number of land use changes, and also the population growth.

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