



SUBURBAN ZONING OF BANDUNG RAYA AREA

Jupri¹ and Asep Mulyadi²

Department of Geography Education, Universitas Pendidikan Indonesia

jupri@upi.edu, asepmulka@gmail.com

ABSTRACT

Suburban area or urban periphery have an important role in supporting the development of the city. This role become increasingly important as the development of suburban areas from rural characteristics (agricultural) to urban characteristics (industry and services). The aim of this study is creating zone of suburban areas in four zones, that is: (1) Urban Frame Zone; (2) Rural Urban Frame Zone; (3) Urban Rural Frame Zone; (4) Rural Frame Zone. The method used in this research is spatial analysis based on proportion of agrarian land use with settlement land use. The data source used is the satellite imagery of Landsat 8 in 2015 in the suburbs area of Great Bandung. The result of this research is a Peripheral Zone Map of Bandung Raya in 1: 300.000. The map can be used as a reference in structuring and controlling development policies in Bandung Raya.

Keywords: zoning, suburban area, Bandung Raya.

ABSTRAK

Wilayah pinggiran kota (urban fringe atau urban periphery) mempunyai peran penting dalam mendukung perkembangan kota. Peranan tersebut akan semakin penting seiring dengan perkembangan wilayah pinggiran kota dari karaktersitik pedesaan (pertanian) ke karateristik perkotaan (industri dan jasa). Penelitian ini bertujuan untuk membuat zonasi wilayah pinggiran kota dalam empat zona, yaitu: (1) Zona Bingkai Kota; (2) Zona Bingkai Kota Desa; (3) Zona Bingkai Desa Kota; (4) Zona Bingkai Desa. Metode penelitian yang digunakan adalah analisis spasial berbasis proporsi penggunaan lahan yang bersifat agraris dengan penggunaan lahan pemukiman. Sumber data yang digunakan adalah citra Landsat 8 tahun 2015 di wilayah pinggiran Bandung Raya. Hasil dari penelitian ini adalah Peta Zona Pinggiran Bandung Raya skala 1: 300.000. Peta tersebut dapat dijadikan rujukan dalam penataan dan pengendalian kebijakan pembangunan di Bandung Raya.

Kata Kunci : Zonasi, Wilayah Pinggiran Kota, Bandung Raya.

INTRODUCTION

Suburban area is an area which is also known as the "urban fringe" or area "urban periphery" (Yunus: 2005). This area needs serious attention as it relates to the livelihood of the residents of both the village and the city in the future. Why is the Peripheral Urban Area (PUA) important for the future of the people's lives? PUA is a region located between two territories that have different characteristic in environmental condition. Urban and rural areas have complex life

dimensions that generally show different attributes. Then in PUA, there is a special attribute that is a combination of both.

Bandung Raya area is a National Center of Activities which grows from the Bandung City. This area grows by the number and density of its population which has increased quite rapidly. It affecting the needs of space, especially for residential purposes. The short and long-term government interest that should not be ignored is the ability to meet the food needs in Peripheral Urban Area (PUA). As

it is known that the growth rate of Indonesian population is still high enough that the demand for food will always rise. This is indeed a very normal state of existence. However, this condition needs to get serious attention so that the survival of the population can be maintained in the future. All components of the nation should care about the future problems of the nation, as it concerns the resilience of the national economy.

Suburban areas have an important role in supporting the dynamics of the city both from the physical and socioeconomic aspects. So, the order to the urban in the future will be determined by the form of process and developmental impacts that occur on the outskirts of the city. Physical and social transformations will continue to accompany the periphery as a result of shifting land use from agriculture to settlements. Therefore, zoning of suburban areas is necessary. Suburban area will be zoning in the form of City Zone Frame Structure, Frame Zone of Village Town, Urban Village Frame Zone, and Village Border Zone.

Yunus (2001) argues that PUA is characterized by the presence of boundaries that mediate urban zones and rural zones. The boundary between city and village is not a clear boundary but an elongated area that resembles a boundary. Therefore, a more detailed specification is required. The 50% limit on urban land and 50% of the rural land is very relative and will undergo rapid changes. Changes occurring in PUA are so dynamic that the identification of the longer-term territorial path is maintained. It is necessary to present a path with a certain range of values to be deeper in recognizing the process of urbanization (change of rural land into urban land). The boundary between urban zones and rural zones can be divided into two subzones again although the nuance is smaller. Broadly speaking it can be argued that rural zones

and urban zones are characterized by a striking proportion of the difference between urban land and rural land.

METHODS

The research method is a way to obtain and use research data (Arikunto, 1997). Sutanto (1992, pp. 82) argues that "the research method or methodology of a study, is the overall design to solve the research problem". Then Sugioyono (2008, p.2) states "research methods are basically a scientific way of obtaining data for specific purposes and uses".

The method used in this research is descriptive survey method. The data collected and processed is the level of suitability data between the spatial use pattern (land use) in the field with the spatial plan. The research is also supported by remote sensing data (satellite image), analyzed and presented using Geographic Information System.

Descriptive survey method has an advantage in explaining information about the occurring phenomenon. West (1980) in Jonah (2010, pp. 312) explains that the descriptive survey method can comprehensively describe the geosphere phenomena both quantitatively and qualitatively. Therefore, the method can be assisted by analysis tools such as maps, satellite images, tables, and diagrams. It is intended that the research data can be explained quantitatively and qualitatively.

Data analysis techniques used in this research are mixed methods or mixed methods. According to Creswell & Plano Clark (2007) describes that mixed-method research is a research approach that combines qualitative and quantitative forms. This approach involves philosophical assumptions, qualitative and quantitative approaches, and mixing both approaches. This approach is more complex than simply collecting and analyzing two types of data. It also

involves the functioning of two research approaches collectively so that the strength of the study as a whole is greater than qualitative and quantitative research (Putra, 2013, p 48).

Based on these arguments it is concluded that the mixed methods used in this spatial-based research consist of qualitative and quantitative approaches. According to Winchester (2000) in Yunus (2010), the qualitative approach aims to explain the condition of the human environment and the natural physical environment with a conceptual framework. While the quantitative approach in spatial-based research according to Yunus (2010) reveals that the quantitative approach has the main purpose to reveal the phenomenon by using data numbers and use them in a measurable manner both mathematically and statistically.

RESULT AND DISCUSSION

Bandung Raya area is one of the strategic areas of West Java province and the national activity center. It has geographical location 107°10'51,24" E and 7°18'52,92" S. The administrative boundaries of Bandung Raya area is as follows:

- North : Purwakarta District and Subang District
- South : Garut District and Cianjur District
- West : Cianjur District
- East : Garut District and Sumedang District (Rancakalong Subdistrict and Tanjungsari Subdistrict)

Regions Bandung Raya administratively has an area of 3313,08 Km² consisting of 5 areas of cities/regencies in West Java Province, as follows: Bandung City, Bandung District, Bandung Barat District, Cimahi City and some districts in Sumedang Regency.

Table 1. City/District in Bandung Raya Area

| No | City/District | Surface Area (Km ²) |
|--------------|---------------------------|---------------------------------|
| 1 | Bandung City | 172,68 |
| 2 | Bandung District | 1.726,88 |
| 3 | Bandung Barat District | 1.287,73 |
| 3 | Cimahi City | 44,43 |
| 5 | Sumedang District | |
| | a. Jatinangor Subdistrict | 42,30 |
| | b. Sukasari Subdistrict | 39,06 |
| TOTAL | | 3313,08 |

Source: Kota Bandung, Kab. Bandung, Kab. Bandung Barat, Kota Cimahi, Kab. Sumedang dalam Angka Tahun 2015

Social Condition of Research Area

Social conditions in a region can be seen based on demographic conditions. Demographic conditions are characteristic of a population under review based on the number, composition, distribution, birth, death and migration of the population.

Size and Density of Population

The population is a major component in regional development. The population is also a resource that can grow. Rapid population growth can be used as asset to build a region. In addition, rapid growth can also potentially trigger a variety of social, environmental and other problems. The population of Bandung Raya area is 8,393,002 people (4,250,298 male and 4,142,704 female). Population density in Metropolitan Area Bandung Raya spread unevenly.

Bandung Raya Area has a population density of 2,533,29 people/km². Bandung City is the highest density of 14,370.33 people/km², while the lowest density is Sumedang (Sukasari 850,92 jiwa/km²). The high level of population density that occurred in some areas of Greater Bandung area caused by the high number of births and migration in the region semetara area relatively fixed. Such a thing, causing the density of

the population. Population density that occurred in the Greater Bandung Region was not spread evenly. The phenomenon is caused by the rapid growth of an urban area. Rapid urban growth affects the interest of the population to live and move in urban areas so that urban space becomes more crowded.

Composition of Population by Gender

Bandung Raya Area has a balanced population composition, that is 51% male and 49% female or 4,250,298 male and 4,142,704 female. Table 4.7 which shows the composition of population by sex in the Bandung Raya Area, as follows in table 3.

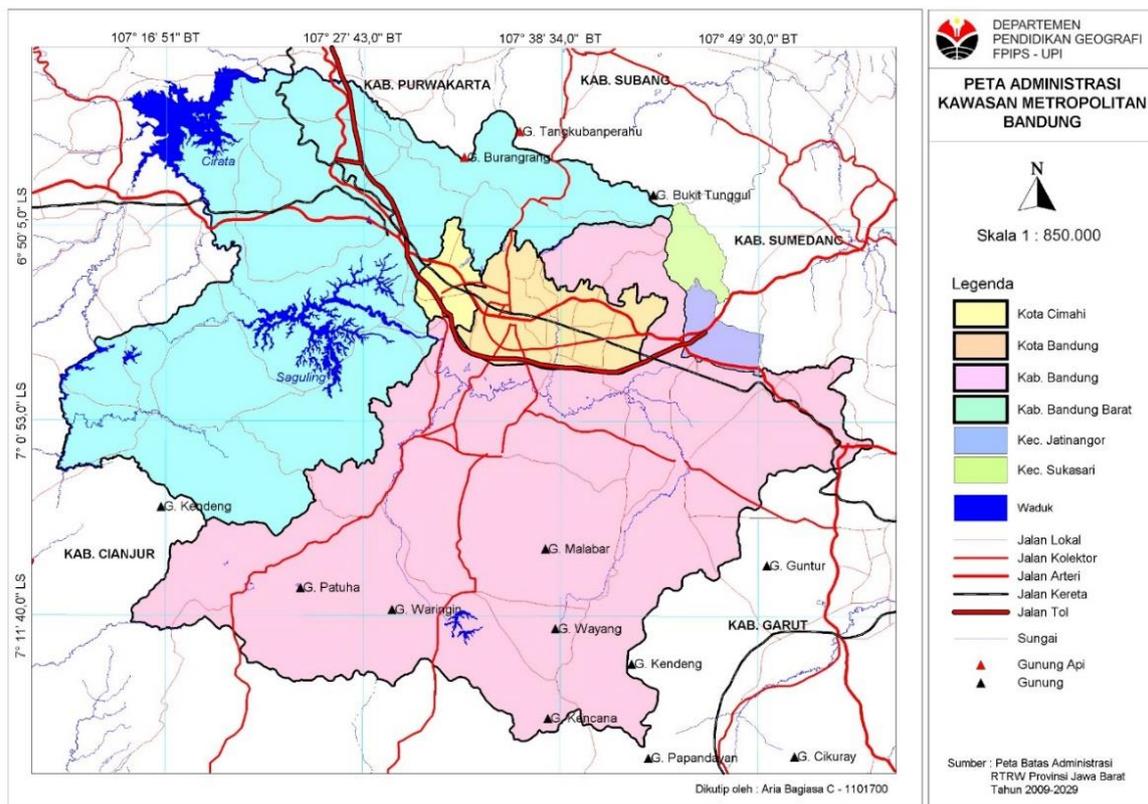


Figure 1. Research Area Map in Bandung Raya

Table 2. Total Population Bandung Raya Area, 2016

| No | City/District | Surface Area (Km ²) | Population Size | Population Density (people/km ²) |
|--------------|---------------------------|---------------------------------|-------------------|--|
| 1 | Bandung City | 172,68 | 2.481.469 | 14.370,33 |
| 2 | Bandung District | 1.726,88 | 3.534.111 | 2.046,53 |
| 3 | Bandung Barat District | 1.287,73 | 1.644.984 | 1.277,43 |
| 4 | Cimahi City | 44,43 | 586.580 | 13.202,34 |
| 5 | Sumedang District | | | |
| | a. Jatinangor Subdistrict | 42,3 39,06 | 112.621 33.237 | 2.662,43 850,92 |
| | b. Sukasari Subdistrict | | | |
| Total | | 3.313,08 | 8.393.002 | 2.533,29 |

Source: Badan Pusat Statistik, 2016

Table 3. Population Composition based on Gender in Bandung Raya Area

| No | City/District | Gender | | Total Amount |
|--------------|---------------------------|-----------|-----------|--------------|
| | | M | F | |
| 1 | Bandung City | 1.253.274 | 1.228.195 | 2.481.469 |
| 2 | Bandung District | 1.792.864 | 1.741.247 | 3.543.111 |
| 3 | Bandung Barat District | 834.515 | 810.469 | 1.644.984 |
| 4 | Cimahi City | 295.708 | 290.872 | 586.580 |
| 5 | Sumedang District | | | |
| | a. Jatinangor Subdistrict | 56.897 | 55.724 | 112.621 |
| | b. Sukasari Subdistrict | 17.040 | 16.197 | 33.237 |
| Total | | 4.250.298 | 4.142.704 | 8.393.002 |

Source: Badan Pusat Statistik, 2016

Furthermore, based on the table can be known sex ratio. The Sex Ratio is used to show the comparison between the number of male population and the population in a region. Here's how to get the sex ratio, by using the formula:

$$\text{Sex Ratio} = \frac{\text{number of male population}}{\text{number of female population}} \times 100$$

$$\text{Sex Ratio} = \frac{4.250.298}{4.142.704} \times 100$$

$$\text{Sex Ratio} = 102,59 \approx 103$$

The calculation shows the sex ratio of 103, which means that every 100 female population there are 103 male population. The ratio can be concluded that the ratio between male and female population is almost equal.

Composition of Population by Age

Composition of Population by age dapat digunakan untuk mengidentifikasi angka beban tanggungan. Angka beban tanggungan merupakan salah satu

indikator keadaan ekonomi suatu daerah. Suatu daerah dengan angka beban tanggungan yang semakin rendah maka daerah tersebut semakin maju, begitu pun sebaliknya. Angka beban tanggungan dapat diperoleh dari perhitungan perbandingan antara penduduk yang berusia tidak produktif dengan penduduk yang berusia produktif dikalikan 100. Perhitungan tersebut dapat diketahui berdasarkan Tabel 4.7

Composition of Population by age can be used to identify dependent ratio level. The dependency ration is an indicator of the economic condition of a region. An area with a lower dependency ration will develop faster than the area with high dependency ratio. The dependency ration can be calculated by dividing the number of unproductive and productive population, then multiplied by 100. The calculation can be determined based on Table 4.

Table 4. Population Composition based on Age in Bandung Raya Area

| No | Age Range | City/District | | | | | Total |
|----|-----------|---------------|-----------|-----------|---------|---------|-----------|
| | | (1) | (2) | (3) | (4) | (5) | |
| 1 | 0-14 | 589.314 | 1.040.391 | 447.804 | 146.873 | 289.315 | 2.513.697 |
| 2 | 15-64 | 1.780.786 | 2.338.427 | 1.109.167 | 415.999 | 765.831 | 6.336.049 |
| 3 | >65 | 111.369 | 149.292 | 88.013 | 23.708 | 82.127 | 454.509 |

Source: Badan Pusat Statistik, 2016

Note: (1) Bandung City, (2) Bandung District, (3) Bandung Barat District, (4) Cimahi City and (5) Sumedang District.

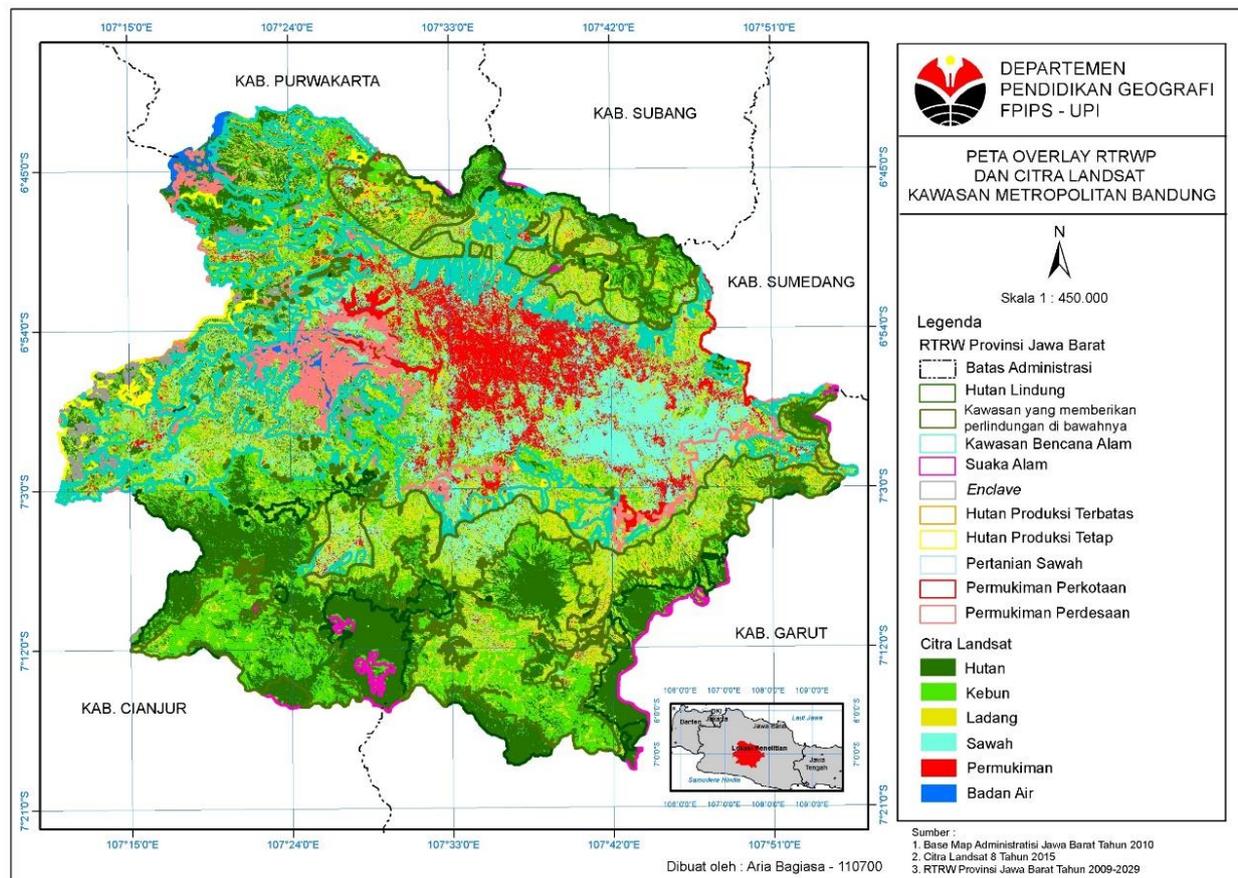


Figure 2. Land Use Map of Bandung Raya Area

The table shows that the unproductive population is the age group 0-14 years is 2.513.697 inhabitants and age group >65 years is 454.509 inhabitants. The number of unproductive population is 2.968.206 people. Then, the productive population numbered 6.336.049 people. To obtain the number of dependency ratio in the Greater Bandung Area that can be known by the formula:

$$\text{Dependency Ratio} = \frac{\text{number of unproductive population}}{\text{number of productive population}} \times 100$$

$$\text{Dependency Ratio} = \frac{2.968.206}{6.336.049} \times 100$$

$$\text{Dependency Ratio} = 46,84 \approx 47$$

Based on these calculations, the dependency ratio in the Bandung Raya Area is 47, which means that every 100 people of productive age must bear 47 people unproductive age. This figure is considered to be borne by the productive population. Being able or not a

productive-aged population to bear unproductive aged populations will affect urban growth rates both economically and socially.

Referring to the zone identification based on the proportion of agrarian and non-agricultural land use can be stated that:

- Urban Frame Zone (UFZ) has a range of values 75% - 100% of urban land and 0% - 25% of rural land.
- Rural Urban Frame Zone (RUFZ) has a range of values 50% - 75% of urban land and 25% - 50% of rural land.
- Urban Rural Frame Zone (URFZ) has a range of values 25% - 50% of urban land and 50% - 75% of rural land.
- Rural Frame Zone (RFZ) has a range of values 0% - 25% of urban land and 75% - 100% of rural land.

However, it is recognized that the definition of Peripheral Urban Area (PUA)

is not only determined by the physical appearance. Spatial attributes in the economic, social, and cultural spheres can also be utilized for PUA delimitation. But because economic, social, and cultural parameters are complex, most researchers do not base their PUA spatial delimitation on the basis of their social, economic, and cultural complexities. For researchers who interested in PUA on economic, social and cultural grounds, the authors suggest

limiting certain specific indicators that can be measured. So that what is put forward can provide comprehensive information (Yunus, 2005).

Bandung Raya Area is a major area development area which includes Bandung City, Bandung Regency, West Bandung Regency, Cimahi City, Sukasari District and Jatinangor Sub-District Sumedang Regency (Province of West Java Spatial Plans, 2009-2029).

Table 5. Zoning of Peripheral Urban Area (PUA) in Bandung Barat District

| Area | Land Use | Area (Km ²) | % | Percentage % | Zone |
|------------------------|------------|-------------------------|-------|--------------|---|
| Batujajar Subdistrict | Forest | 10,36 | 14,6 | Urban | Rural Urban Frame Zone (50-75% Rural) |
| | Kailyard | 4,789 | 6,7 | 6,2 | |
| | Dry field | 21,026 | 29,5 | | |
| | Rice field | 23,403 | 32,9 | Rural | |
| | Settlement | 4,422 | 6,2 | 69,1 | |
| | Waterbody | 7,181 | 10,1 | | |
| TOTAL | | 71,181 | 100,0 | | |
| Padalarang Subdistrict | Forest | 6,018 | 11,5 | Urban | Rural Urban Frame Zone (50-75% Rural) |
| | Kailyard | 9,448 | 18,1 | 14,6 | |
| | Dry field | 17,016 | 32,6 | | |
| | Rice field | 10,336 | 19,8 | Rural | |
| | Settlement | 7,629 | 14,6 | 70,5 | |
| | Waterbody | 1,715 | 3,3 | | |
| TOTAL | | 52,162 | 100,0 | | |
| Ngamprah Subdistrict | Forest | 2,989 | 8,3 | Urban | Rural Urban Frame Zone (50-75% Rural) |
| | Kailyard | 4,981 | 13,8 | 26,8 | |
| | Dry field | 10,365 | 28,8 | | |
| | Rice field | 8,024 | 22,3 | Rural | |
| | Settlement | 9,651 | 26,8 | 64,9 | |
| | Waterbody | | | | |
| TOTAL | | 36,01 | 100,0 | | |
| Cisarua Subdistrict | Forest | 9,328 | 17,0 | Urban | Rural Frame Zone (>75% Rural) |
| | Kailyard | 10,933 | 20,0 | 5,9 | |
| | Dry field | 21,421 | 39,1 | | |
| | Rice field | 9,806 | 17,9 | Rural | |
| | Settlement | 3,237 | 5,9 | 77,0 | |
| | Waterbody | | | | |
| TOTAL | | 54,725 | 100,0 | | |
| Parongpong Subdistrict | Forest | 9,882 | 24,1 | Urban | Rural Urban Frame Zone |
| | Kailyard | 9,713 | 23,7 | 7,9 | |
| | Dry field | 10,399 | 25,4 | | |

| Area | Land Use | Area (Km ²) | % | Percentage % | Zone |
|------------------------|------------|-------------------------|-------|--------------|-------------------------------|
| | Rice field | 7,768 | 19,0 | Rural | (50-75% Rural) |
| | Settlement | 3,229 | 7,9 | 68,0 | |
| TOTAL | | 40,991 | 100,0 | | |
| Lembang Subdistrict | Forest | 22,496 | 23,5 | Urban | Rural Urban Frame Zone |
| | Kailyard | 20,117 | 21,1 | 10,3 | |
| | Dry field | 30,924 | 32,4 | | |
| | Rice field | 12,185 | 12,8 | Rural | (50-75% Rural) |
| | Settlement | 9,838 | 10,3 | 66,2 | |
| TOTAL | | 95,56 | 100,0 | | |
| Cihampelas Subdistrict | Forest | 5,371 | 14,0 | Urban | Rural Urban Frame Zone |
| | Kailyard | 5,135 | 13,4 | 5,2 | |
| | Dry field | 10,707 | 27,9 | | |
| | Rice field | 10,608 | 27,7 | Rural | (50-75% Rural) |
| | Settlement | 1,976 | 5,2 | 69,0 | |
| | Waterbody | 4,542 | 11,8 | | |
| TOTAL | | 38,339 | 100,0 | | |

Table 6. Zoning of Peripheral Urban Area (PUA) in Bandung District

| Area | Land Use | Area (Km ²) | % | Percentage % | Zone |
|-------------------------|------------|-------------------------|-------|--------------|-------------------------------|
| Margaasih Subdistrict | Forest | 0,72 | 3,9 | Urban | Rural Urban Frame Zone |
| | Kailyard | 1,111 | 6,1 | 34,3 | |
| | Dry field | 5,216 | 28,6 | | |
| | Rice field | 4,929 | 27,0 | Rural | (50-75% Rural) |
| | Settlement | 6,253 | 34,3 | 61,7 | |
| TOTAL | | 18,229 | 100,0 | | |
| Margahayu Subdistrict | Forest | 0,195 | 1,9 | Urban | Urban Rural Frame Zone |
| | Kailyard | 0,581 | 5,6 | 50,6 | |
| | Dry field | 1,549 | 14,8 | | |
| | Rice field | 2,834 | 27,1 | Rural | (50-75% Urban) |
| | Settlement | 5,291 | 50,6 | 47,5 | |
| TOTAL | | 10,45 | 100,0 | | |
| Dayeuhkolot Subdistrict | Forest | 0,172 | 1,6 | Urban | Urban Rural Frame Zone |
| | Kailyard | 0,391 | 3,5 | 51,0 | |
| | Dry field | 1,694 | 15,3 | | |
| | Rice field | 3,165 | 28,6 | Rural | (50-75% Urban) |
| | Settlement | 5,651 | 51,0 | 47,4 | |
| TOTAL | | 11,073 | 100,0 | | |
| Bojongsong Subdistrict | Forest | 0,461 | 1,6 | Urban | Rural Frame Zone |
| | Kailyard | 1,536 | 5,5 | 12,4 | |

| Area | Land Use | Area (Km ²) | % | Percentage % | Zone |
|--------------------------|------------|-------------------------|-------|--------------|-------------------------------|
| | Dry field | 5,517 | 19,6 | | |
| | Rice field | 17,179 | 61,0 | Rural | (>75% Rural) |
| | Settlement | 3,489 | 12,4 | 86,0 | |
| TOTAL | | 28,182 | 100,0 | | |
| Kutawaringin Subdistrict | Forest | 5,407 | 11,4 | Urban | Rural Frame Zone |
| | Kailyard | 15,621 | 33,0 | 6,6 | |
| | Dry field | 12,302 | 26,0 | | |
| | Rice field | 10,857 | 23,0 | Rural | (>75% Rural) |
| | Settlement | 3,113 | 6,6 | 82,0 | |
| TOTAL | | 47,3 | 100,0 | | |
| Katapang Subdistrict | Forest | 0,882 | 4,2 | Urban | Rural Urban Frame Zone |
| | Kailyard | 2,873 | 13,7 | 26,5 | |
| | Dry field | 4,304 | 20,5 | | |
| | Rice field | 7,375 | 35,1 | Rural | (>50-75% Rural) |
| | Settlement | 5,578 | 26,5 | 69,3 | |
| TOTAL | | 21,012 | 100,0 | | |
| Pameungpeuk Subdistrict | Forest | 1,1 | 7,1 | Urban | Rural Frame Zone |
| | Kailyard | 2,158 | 13,9 | 14,4 | |
| | Dry field | 3,284 | 21,1 | | |
| | Rice field | 6,759 | 43,5 | Rural | (>75% Rural) |
| | Settlement | 2,235 | 14,4 | 78,5 | |
| TOTAL | | 15,536 | 100,0 | | |
| Baleendah Subdistrict | Forest | 1,185 | 2,8 | Urban | Rural Frame Zone |
| | Kailyard | 7,353 | 17,6 | 18,9 | |
| | Dry field | 8,977 | 21,5 | | |
| | Rice field | 16,165 | 38,8 | Rural | (>75% Rural) |
| | Settlement | 7,863 | 18,9 | 77,9 | |
| TOTAL | | 41,543 | 99,6 | | |
| Ciparay Subdistrict | Forest | 2,596 | 4,8 | Urban | Rural Frame Zone |
| | Kailyard | 9,086 | 16,9 | 6,2 | |
| | Dry field | 13,61 | 25,3 | | |
| | Rice field | 25,222 | 46,8 | Rural | (>75% Rural) |
| | Settlement | 3,358 | 6,2 | 88,9 | |
| TOTAL | | 53,872 | 100,0 | | |
| Solokanjeruk Subdistrict | Forest | 0,03 | 0,1 | Urban | Rural Frame Zone |
| | Kailyard | 0,389 | 1,6 | 7,0 | |
| | Dry field | 3,419 | 14,1 | | |
| | Rice field | 18,673 | 77,1 | Rural | (>75% Rural) |
| | Settlement | 1,702 | 7,0 | 92,8 | |
| TOTAL | | 24,213 | 100,0 | | |

| Area | Land Use | Area (Km ²) | % | Percentation % | Zone |
|-------------------------|------------|-------------------------|-------|----------------|-------------------------------|
| Rancaekek Subdistrict | Forest | 0,372 | 0,8 | Urban | Rural Frame Zone |
| | Kailyard | 1,593 | 3,5 | 10,3 | |
| | Dry field | 6,751 | 14,8 | | |
| | Rice field | 32,191 | 70,6 | Rural | (>75% Rural) |
| | Settlement | 4,698 | 10,3 | 88,9 | |
| TOTAL | | 45,605 | 100,0 | | |
| Cileunyi Subdistrict | Forest | 2,074 | 6,6 | Urban | Rural Urban Frame Zone |
| | Kailyard | 4,006 | 12,7 | 26,0 | |
| | Dry field | 8,127 | 25,7 | | |
| | Rice field | 9,18 | 29,1 | Rural | (50-75% Rural) |
| | Settlement | 8,2 | 26,0 | 67,5 | |
| TOTAL | | 31,587 | 100,0 | | |
| Cilengkrang Subdistrict | Forest | 10,549 | 35,0 | Urban | Rural Urban Frame Zone |
| | Kailyard | 5,038 | 16,7 | 4,2 | |
| | Dry field | 9,912 | 32,9 | | |
| | Rice field | 3,369 | 11,2 | Rural | (50-75% Rural) |
| | Settlement | 1,254 | 4,2 | 60,8 | |
| TOTAL | | 30,122 | 100,0 | | |
| Cimencyan Subdistrict | Forest | 5,66 | 10,7 | Urban | Rural Urban Frame Zone |
| | Kailyard | 11,246 | 21,2 | 14,3 | |
| | Dry field | 19,363 | 36,5 | | |
| | Rice field | 9,214 | 17,4 | Rural | (50-75% Rural) |
| | Settlement | 7,597 | 14,3 | 75,0 | |
| TOTAL | | 53,08 | 100,0 | | |

Table 7. Zoning of Peripheral Urban Area (PUA) in Sumedang District

| Area | Land Use | Area (Km ²) | % | Percentation % | Zone |
|------------------------|------------|-------------------------|-------|----------------|-------------------------------|
| Sukasari Subdistrict | Forest | 7,826 | 20,1 | Urban | Rural Frame Zone |
| | Kailyard | 13,406 | 34,4 | 2,6 | |
| | Dry field | 11,186 | 28,7 | | |
| | Rice field | 5,512 | 14,2 | Rural | (>75% Rural) |
| | Settlement | 1,008 | 2,6 | 77,3 | |
| TOTAL | | 38,938 | 100,0 | | |
| Jatinangor Subdistrict | Forest | 2,094 | 8,0 | Urban | Rural Urban Frame Zone |
| | Kailyard | 2,093 | 8,0 | 25,4 | |
| | Dry field | 8,832 | 33,7 | | |
| | Rice field | 6,575 | 25,1 | Rural | (50-75% Rural) |
| | Settlement | 6,668 | 25,4 | 66,8 | |
| TOTAL | | 26,262 | 100,0 | | |

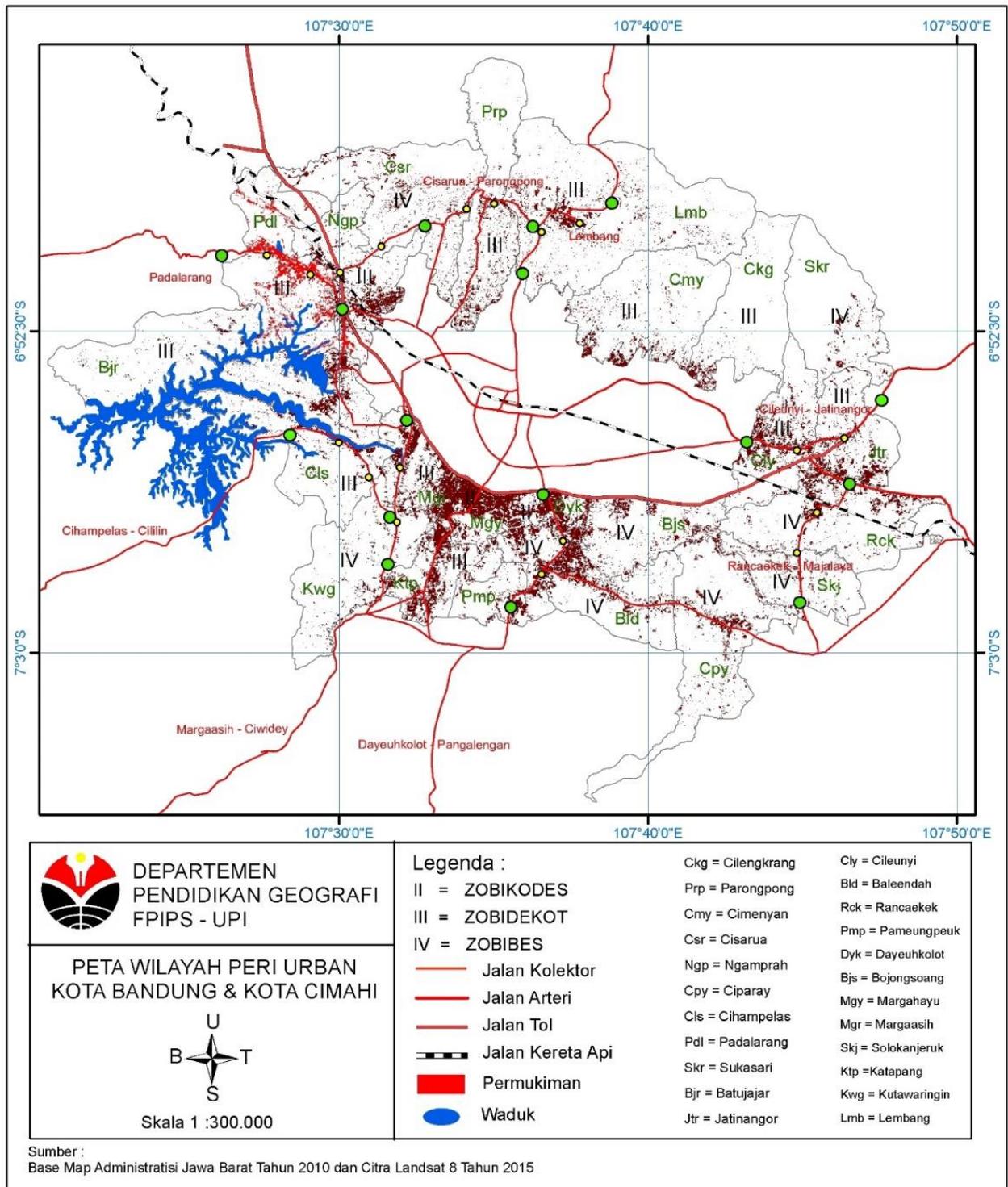


Figure 3. Peripheral Urban Area (PUA) Map of Bandung City and Cimahi City

PUA in Bandung Raya by taking some villages directly adjacent to the city of Bandung and Cimahi as the most dynamic part. Based on the existing zonification, it turns out the trend of city development both in terms of physical and demographic can be known clearly. This is very important to understand the

urban problems, especially determinants of spatial policies in order to control the development of the city. So that the negative impact on the environment can be over as soon as possible. Then, anticipatory steps can be done to solve them.

CONCLUSIONS

PUA Bandung Raya has a different development in the north, east, west and south. This distinction is based on the physical condition, the development of infra structure and the history of the city. Zoning maps that have been made is expected to be a reference or referral in the implementation of regional development policies in the Greater Bandung Area.

REFERENCE

Buku

Arikunto, S. (1997). *Prosedur penelitian suatu praktek*. Rineka Cipta: Jakarta.

Baja, S. (2012). *Perencanaan tata guna lahan dalam pengembangan wilayah-pendekatan spasial & aplikasinya*. Yogyakarta: Andi.

Irwansyah, E. (2013). *Sistem informasi geografis: prinsip dasar dan*

pengembangan aplikasi. Yogyakarta: Digibooks.

Putra, N. & Hendarman. (2013). *Mixed method research metode riset campur sari konsep, strategi dan aplikasi*. Jakarta: Permata Puri Media.

Yunus, H.S. (2008). *Manajemen kota prespektif spasial*. Yogyakarta: Pustaka Pelajar.

Yunus, H.S. (2010). *Metodelogi penelitian wilayah kontemporer*. Yogyakarta: Pustaka Pelajar.

Artikel Ilmiah

Sitanggang, G. (2010). Kajian pemanfaatan satelit masa depan: sistem penginderaan jauh satelit LDCM (LANDSAT-8). *Berita Dirgantara*, 2 (2) hlm. 51.