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COVID-19 IMPACT TO MOBILITY IN SEMARANG INDONESIA AND PENANG MALAYSIA

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ABSTRAK

The increase in the number of Covid-19 cases in the world is increasing until now. Based on WHO data, many countries in Southeast Asia are the highest contributors to cases in the world, some of these countries include Indonesia and Malaysia. The development of positive cases of Covid-19 in Indonesia in the past two years has reached 1.3 million cases while for Malaysia it has reached 296 thousand cases in 2021. Along with the development of cases in various countries, theories regarding urban growth are also in the spotlight. This is because some researchers have found that urban areas have a greater tendency to increase the number of new cases. A large number of activities and the high population density in urban areas causes the minimum distance between humans and other humans. It cannot be denied that population mobility is one of the factors that drive the phenomenon of an urban structural change such as post suburban. Semarang Indonesia and Penang Malaysia are one of the locations in the Southeast Asia region that have these two factors, namely the potential for the spread of high positive cases of Covid-19 accompanied by the development of urban spatial structures due to population mobility. This study aims to determine the effect of the spread of Covid-19 on population mobility which causes changes in the structure of the urban space. Through the optimization of online and institutional secondary data that will be processed using quantitative and spatial analysis methods. The expected results are in the form of quantitative and spatial relationships that are shown between the pattern of the spread of Covid-19 on population mobility. So that this research can later become input material for the government in both locations to carry out adaptive development of areas for infectious diseases such as Covid-19.

Keywords: Covid-19, Population Mobility, Post Suburban.

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SUMMARY

The increase in the number of Covid-19 cases in the world is increasing until now. Based on WHO data, many countries in Southeast Asia are the highest contributors to cases in the world, some of these countries include Indonesia and Malaysia. The development of positive cases of Covid-19 in Indonesia in the past two years has reached 1.3 million cases while for Malaysia it has reached 296 thousand cases in 2021. Along with the development of cases in various countries, theories regarding urban growth are also in the spotlight. This is because some researchers have found that urban areas have a greater tendency to increase the number of new cases. A large number of activities and the high population density in urban areas causes the minimum distance between humans and other humans. It cannot be denied that population mobility is one of the factors that drive the phenomenon of an urban structural change such as post suburban. Semarang Indonesia and Penang Malaysia are one of the locations in the Southeast Asia region that have these two factors, namely the potential for the spread of high positive cases of Covid-19 accompanied by the development of urban spatial structures due to population mobility. This study aims to determine the effect of the spread of Covid-19 on population mobility which causes changes in the structure of the urban space. Through the optimization of online and institutional secondary data that will be processed using quantitative and spatial analysis methods. The expected results are in the form of quantitative and spatial relationships that are shown between the pattern of the spread of Covid-19 on population mobility. So that this research can later become input material for the government in both locations to carry out adaptive development of areas for infectious diseases such as Covid-19.

Keywords: Covid-19, Population Mobility, Post Suburban.

CHAPTER 1. INTRODUCTION

1.1 Background

The massive spread of the Covid-19 virus in various parts of the world led to the stipulation of an international emergency status by the World Health Organization (WHO) in January 2020. There were 87 million cases of positive cases, with 1 million deaths and increased from time to time (WHO, 2021). It is a health crisis and a global economic crisis because many people have lost their jobs (Hakovirta, 2020; Nicola, 2020). Cases of Covid-19 transmission occur from person to person through fluids or small particles that leave the body. The disease transmission process through the air is closely related to population mobility because airborne pathogens can spread rapidly along population mobility pathways during the period of virus transmission (Zhou H, 2014). Several previous studies on SARS stated that population mobility tends to spread the SARS epidemic to other areas, and areas with high accessibility will have a high level of risk of spreading as well (Hsu et al., 2003; Fang et.al., 2009).

Locations with high mobility and accessibility tend to be filled with population activities so that the distance between humans and other humans is minimal. This is, of course, very risky for densely populated areas such as downtown areas. Barbarossa (2020) confirms this statement because, in his research, he found that the highest cases of the spread of Covid-19 occurred in urban areas, which tend to have dense residential environmental conditions with more diverse population activities. The study provides the fact that 27% of Covid-19 cases in Italy occur in metropolitan areas. Meanwhile WEF (2019) concludes more thoroughly that there are five reasons for the increase in the frequency of outbreaks in urban areas, namely the relatively easy movement of humans, population density, low level of hygiene awareness, environmental damage problems due to illegal logging, climate change that accelerates the process of transmission. disease, poverty, conflict, and emergencies make an increasing human population vulnerable to biological threats. On the other hand, in recent years, urban areas in several countries have shown an increasingly clear change pattern towards the 'Post Suburban Era'. It defined as the phenomenon of urban areas' growth towards the outside (suburban areas), marked by the emergence of new growth centres in suburban metropolitan areas (Dear & Dahmann, 2008). This phenomenon is a form of transformation of urban areas that occurs continuously and results from population movements to meet their daily needs. Research on the post-suburban phenomenon carried out first on the formation of urban space in America

since the 19th century (Erie Sadewo et al., 2018). The theory of post-suburban formed originally from observations of changes in spatial shape that occurred in Los Angeles in the 1920-1930s period and later developed in other metropolitan areas after World War II (Kling et al., 1995). This phenomenon not neglected in several countries in Southeast Asia, such as Indonesia and Malaysia.

The community's unlimited needs mean that important activities such as work, shopping, and others still carried out during a pandemic like today. The existence of a new life order or what is known as the 'New Normal Era' cannot stem population mobility, especially in urban areas. Population movements that concentrated in an area minimized. The trend of population mobility during the Post Suburban period can be an opportunity to overcome this. The function of new growth centres can be optimized to serve residents who concentrated in urban areas. This can be a material consideration for the government and related parties in directing urban development and urban service provision towards the suburbs to break down population mobility. These conditions were taken into consideration in the implementation of this research. Research locations in Semarang, Indonesia and Penang Malaysia are the objects of research on the effect of population mobility during the Post Suburban period on the spread of Covid-19. It is possible if there is a difference in the characteristics of the influence between the two locations, which can be used as input for further research.

1.2 Problem Statement

The urbanization process usually causes the relatively high development of the urban population to meet life necessities. Data shows that in 2021 about 55% of the world's population is concentrated in urban areas (WEF, 2019). This causes urban transformation such as urban sprawl to a phenomenon called Post Suburban. This phenomenon results from high population mobility from the suburbs to the city center for work or other purposes. The emergence of new metropolitan centers along the route of migration has caused public services to be suboptimal and tend to be uneven. On the other hand, the world is currently faced with an increasing Covid-19 pandemic. Locations with high population densities tend to be vulnerable to the spread of Covid-19 because of the minimal distance between humans and other humans.

For example, this study took two regions from different countries, namely Semarang Indonesia and Penang Malaysia. These two locations have the same characteristics in population size, population density, and regional topography. Semarang City is one of the cities

with the highest spread of Covid-19 in Indonesia, with the number of positive cases up to February 2021 reaching 18 thousand people (siagacorona.semarangkota.go.id, 2021). This city has also experienced the Post Suburban phenomenon for a long time, so that many new activity centers have been formed, especially in suburban areas. In addition, the mobility of residents of Semarang City is currently much helped by the existence of public transportation such as the Trans Semarang Bus and modern era transportation in the form of Gojek and the like. Like Semarang City, Penang is a part of Malaysia that has experienced a significant increase in the number of positive cases of Covid-19. As many as 293 thousand cases were recorded as of February 2021 and predicted, this will continue to increase so that Penang and two other states will become a priority zone for extending restrictions on physical distance and social distancing in Malaysia (Wirawan, 2021). Like Indonesia, several regions in Malaysia have also experienced many changes in spatial structure coupled with the development of Malaysia's transportation system in the last few decades.

Mobility of the population from the suburban and vice versa is unavoidable. Several cases in Semarang also show the number of health protocol violators in 2020. Restrictions on population movement are needed to minimize the spread of Covid-19, which is getting higher. So that in addition to the implementation of large-scale social restrictions, it is necessary to transfer other types of mobility. The Post Suburban phenomenon is an opportunity for city planners to create a more optimal mobility system in established activity centers. With the improvement of service facilities, transportation modes, and employment opportunities, it can be an alternative form of solving urban communities' movement. Based on this, this study aims to answer research questions in the form of "How does Covid-19 affect population mobility?" Mostly what happened during the Post Suburban period like today.

1.3 Research Aim and Objectives

Based on the background and research problems identified, the purpose of this study is to see the effect of the Covid-19 pandemic on the population movement model (in this case, mobility), mostly what occurs in the current Post Suburban Era. This research is expected to be a form of new findings for countries, especially in the Southeast Asia region, which has the same problems as Indonesia and Malaysia in overcoming massive population movements in downtown areas. The objectives formulated in achieving the research objectives are as follows:Identify the characteristics of population movements in Semarang and Penang (Pre Pandemic and Post Pandemic).

a. Identify the level of area accessibility through the road network and the availability of transportation facilities.
b. Identifying population movements based on the form of urban spatial development.
c. Identify the pattern of the spread of positive cases of Covid-19 per sub-district in Semarang and Penang.
d. Knowing the spatial and non-spatial relationships between the level of Covid-19 spread and population mobility in Semarang and Penang.

1.4 Urgency / Priority of Research

The condition of the spread of cases and the death rate due to Covid-19, which is getting higher from day to day, is the biggest challenge in the development planning process in Semarang and Penang. Several studies have found that the high level of population mobility and the concentration of activities that tend to be massive in an area have caused the spread of Covid-19 to increase. This linearity occurs due to urban development phenomena such as the 'Post Suburban Era', which occurs due to the high mobility of the population from the suburbs to the city center or vice versa. This causes many overlapping activities between communities in an area. On the other hand, the World Health Organization (WHO) emphasizes the need for a social distance of at least 1.5m to reduce the virus's level of spread. For this reason, it is crucial to conduct a study related to the level of population mobility in an area, especially the population movement towards the distribution pattern of positive Covid-19 cases in areas experiencing the Post Suburban phenomenon such as Semarang Indonesia and Penang Malaysia. This research is expected to become material for the government's scientific consideration in formulating new policies, especially in transportation.

1.5 Outputs / Research Final Target

The research entitled 'Covid-19 Impact to Mobility in Semarang Indonesia and Penang Malaysia' will produce output in the form of publications in Scopus Indexed International Journals and Scopus Indexed International Seminars. The details of the output plan or final research target are as follows:

a. International Journal indexed by Scopus → Journal Applied Science and Engeenering –Taiwan (Q3) – pISSN: 2708-9967 - eISSN: 2708-9975 - http://jase.tku.edu.tw/

b. International Conference → 4th ICSADU dengan tema ‘Inclusive Design toward Sustainablility and Survivability in Architecture and Urbanism’ which will be submitted on September 25, 2021.

1.6 Research Contributions to Science

Contribution in Social Science and Technology is the development of knowledge about the choice of transportation modes. This research is in line with one of the national strategic fields, namely in "Technology Development and Transportation Management," in which there are research topics on transportation. This research also integrates with strategic areas in the research plan of Diponegoro University, namely in the strategic field of infrastructure and transportation, with the direction of technology research and transportation safety management topics. This study's expected results to be input, reference, or consideration in formulating policies and regulations related to public transportation modes. In addition, it can be used as a form of evaluation of government policies on the provision of public transportation modes both nationally and internationally (especially in the Southeast Asia region).

CHAPTER 2. STUDY LITERATURE

2.1 Population Mobility

The need for high population mobility every day makes it challenging to handle the spread of Covid-19, especially in urban areas. Population movement or mobility can be associated with a network of interactions between communities where the connections that occur represent the flow of generated movements (Balcan, et al., 2009). Meanwhile, according to Sumaatmadja (1981), population mobility is the movement of people from one place to another to meet economic needs and meet other social needs. So, mobility can be interpreted as the overall movement carried out by individuals or groups using connected networks to meet their daily needs. The activity of population movement is closely related to the geographical conditions in an area.

Population mobility is divided into two, namely vertical population mobility or changes in status and horizontal population mobility or geographic population mobility (Mantra, 2013). Meanwhile, according to (Tamin O. Z., 2001), population movement or mobility can be divided into spatial movement and aspatial movement. According to Carteni et al, (2020) In their research tried to make calculations related to movement by considering several factors. Research states that the factors that can support movement are accessibility, distance, and reasons for movement. The aspect of mobility or movement becomes an inseparable variable because of its existence, which is crucial in this study. The movement involved is one of the factors causing the increase in virus transmission it seems that Covid-19 is currently happening due to the high concentration of community activities in an area due to this movement.

2.1.1 Pra-Pandemic Mobility

Population mobility is one of the primary human needs that cannot be stopped. This is related to unlimited human needs so that there is a need for the movement to meet these needs. In the normal era or the period before the pandemic, massive human mobility occurred at the local, regional, and international levels (Yazid et al., 2020). Tourism activities, looking for work, taking education, and other activities are among the main goals of population movement from one place to another. In Southeast Asia, such as Indonesia and Malaysia, issues related to

mobility can be in the form of an increase in movement in the economic sector, namely the Asean Economic Community (AEC).

This has caused several countries in Southeast Asia to experience uncontrolled migration of population, especially Malaysia, Singapore, and Thailand, since the 1970s. In general, several factors can influence population movement, namely the physical and non-physical areas. Physical factors of the area can be in the form of geographical conditions, while non-physical factors can be in the form of transportation modes, economic activities, transportation costs, road network conditions, and local socio-culture (Sumaatmadja, 1981). In addition, several studies often link movement or transportation systems to land use in an area. More diverse land uses tend to generate more population activities from within and outside the area (Cervero & Kockelman, 1997). Land for trade, services, and education is one of the land-uses that significantly affect population movements.

2.1.2 During-Post Pandemic Mobility

Population mobility both regionally and internationally between regions was very high before the Covid-19 pandemic and greatly affected community life sectors, especially in the economic sector. The existence of Covid-19 as it is today is complicated to control the movement of population between regions (controlling the spread). Several studies such as (Yazid et al., 2020) state that human mobility is one factor that plays a vital role in accelerating the spread of the Covid-19 virus. For example, like what happened in China where on January 23, 2020, before the lockdown status was established in Wuhan. Many of Covid-19 reports cases cames from Hubei province (81% of all cases), while some of the cases reported were outside. The city of Wuhan generally has travel records from these locations. The study also stated that the spread period (14 days of the virus incubation period) allowed the virus to transmit from one human to another at different locations.

This directly shows that population mobility is very dangerous for the spread of new cases if not controlled. After the virus spreads, the impact that arises is in the form of reversed mobility, namely a condition in which there is a reverse flow of temporary migrants to the area of origin, and mobility limitation in the form of restrictions or stopping population mobility which then impacts various sectors such as transportation, tourism, to the economy. In the deal with Covid-19, various countries implemented the 'New Normal Era' to carry out lockdowns aimed at minimizing population movements. In Indonesia, it is known as Large-Scale Social Restrictions (LSSR); meanwhile in Malaysia is known as Malaysia Movement Control (MCO).

2.2 Post Suburban

The phenomenon of changing the structure of urban space is currently widespread in several countries. The linear spread of urban development against the pattern of population movement creates new growth areas on the city's outskirts. The Urban Sprawl cannot be contained due to the high daily movement of the workforce. As a result, the government has difficulty providing optimal facilities due to activity centers' widespread location. The classic theory of urban growth states that people's movement tends to focus on one strong core, usually in the form of a city center with complete facilities (Dear & Dahmann, 2008). Changes in society in the economic, political, and cultural sectors have produced a new urban structure that is very different from cities in the classical suburban era (Borsdorf, 2004). So that in its development, the terms of urban development emerged in the modern era or what is commonly referred to as the 'Post Suburban Era'. This phenomenon breaks the conception of a growth center that is only concentrated at one point (Urban Core). The emergence of satellite cities is closely related to this phenomenon. This results from the movement of the population in search of work and other activities from the suburbs to the city center or vice versa (commuting). These satellite cities are usually used as residences because they are more affordable due to the very limited space in the downtown area.

Kling et al, (1995) argue that post-suburban has characteristics, namely integrated into the global capitalist market system, transformed from an agricultural area to the industrial sector, has a rural-urban network development phase so that it is difficult to distinguish the boundaries between the two, has an upscale and high-class environmental mix with lower-class. As for the characteristics of an area that has been or is experiencing a post-suburban phase, namely: 1) it is a large suburb and has grown as a massive economic and social unit; 2) there are shopping centers, industrial complexes, office complexes, hospitals, schools, as well as various types of housing which linearly follow the main road; 3) residents usually look for work and daily necessities around it, rather than going to the city center; 4) the industry can provide jobs and other services needed, and 5) spatially post suburban areas tend to be organized in several districts and tend to have their own cultural and commercial centers. This phenomenon is interesting to discuss because it has a concept that is needed during a pandemic like today. Post suburban can be an alternative approach to solving population mobility in the city center to minimize the spread of Covid-19 and create social distancing (reducing concentric population density).

2.3 Preliminary Studies

Research on mobility during a pandemic is still relatively new, from 2020 to the present. For example, research conducted by Ghiffari (2020) discusses the impact of population mobility on the spread of Covid-19 in the City of Jakarta. The study compared demographic data characteristics and the direction of mobility (inside and outside the city) with the spread of positive cases of Covid-19 in each sub-district in Jakarta. That results in a correlation value between each of the previously built variables with the mobility of the population within the city and outside the city, which is the main factor causing the high spread of Covid-19 in the City of Jakarta. Research conducted by (Ming et al., 2020) on 'Movement Control Measures against Covid-19: Mobility Changes in Penang and Malaysia' found that people's movement to public spaces tends to influence the increase in the number of new cases. The comparison of mobility data during the pandemic with the number of distribution of positive Covid-19 cases in Penang Malaysia found that there were changes in mobility in public spaces such as parks, stations, pharmacies, and grocery stores before and during the Covid-19 pandemic. According to the research needs, these two studies can be a basis or complement to the research process by making some adjustments to the analysis indicators or methods.

2.4 State of The Art Research

Humans do a movement every day to make ends meet. The high level of population movements in the city center during the Covid-19 pandemic is a concern in terms of the potential for spread in several areas. Several studies have found that urban areas are the highest contributor to the number of positive cases of Covid-19 worldwide because of their densely populated characteristics. Meanwhile, WHO has determined that to deal with the spread of cases, the community must maintain a minimum distance of 1.5m. The mobility of the population, which is closely related to the spread of Covid-19, is very interesting to study. Coupled with the tendency of changes in population movement in the form of a post-suburban phenomenon that becomes a "fresh air" in breaking the movement concentration in one location. Based on the previous literature review, the researcher formulated the State of The Art research, which is shown in Figure 1 below:

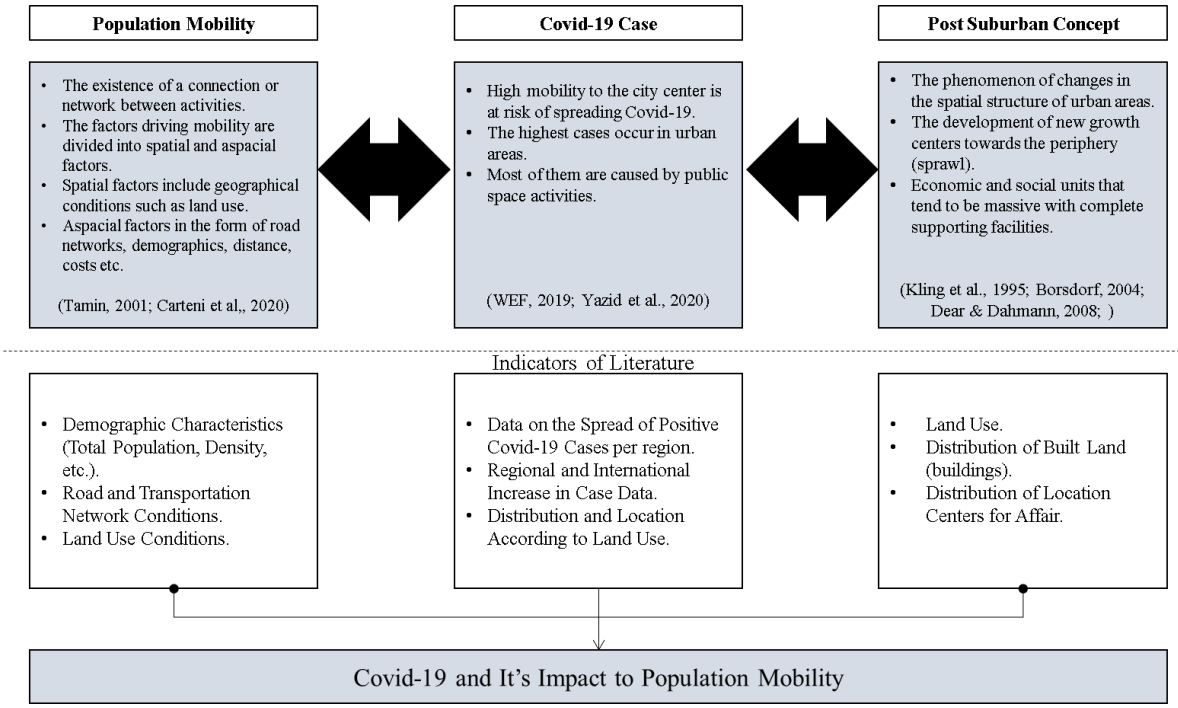


Figure 1. State of The Art Research

2.5 Road Map of Research

The research road map is an illustration of the relationship between current research and previous research. Based on Figure 2, it can be seen that research on the transportation system and its environment has been carried out since 2008. It started with a discussion of settlement development programs and adjusted the need for transportation for people in an area. Subsequent research is more specific about selecting transportation type with the study location in the Banyumanik District, Semarang City. Since 2019, researchers have observed how the existing transportation system is related to developing the surrounding environment. This research is a parameter for the birth of the current research, which focuses on actual problems in the connection between the transportation system and the catastrophic spread of the Covid-19 infectious disease.

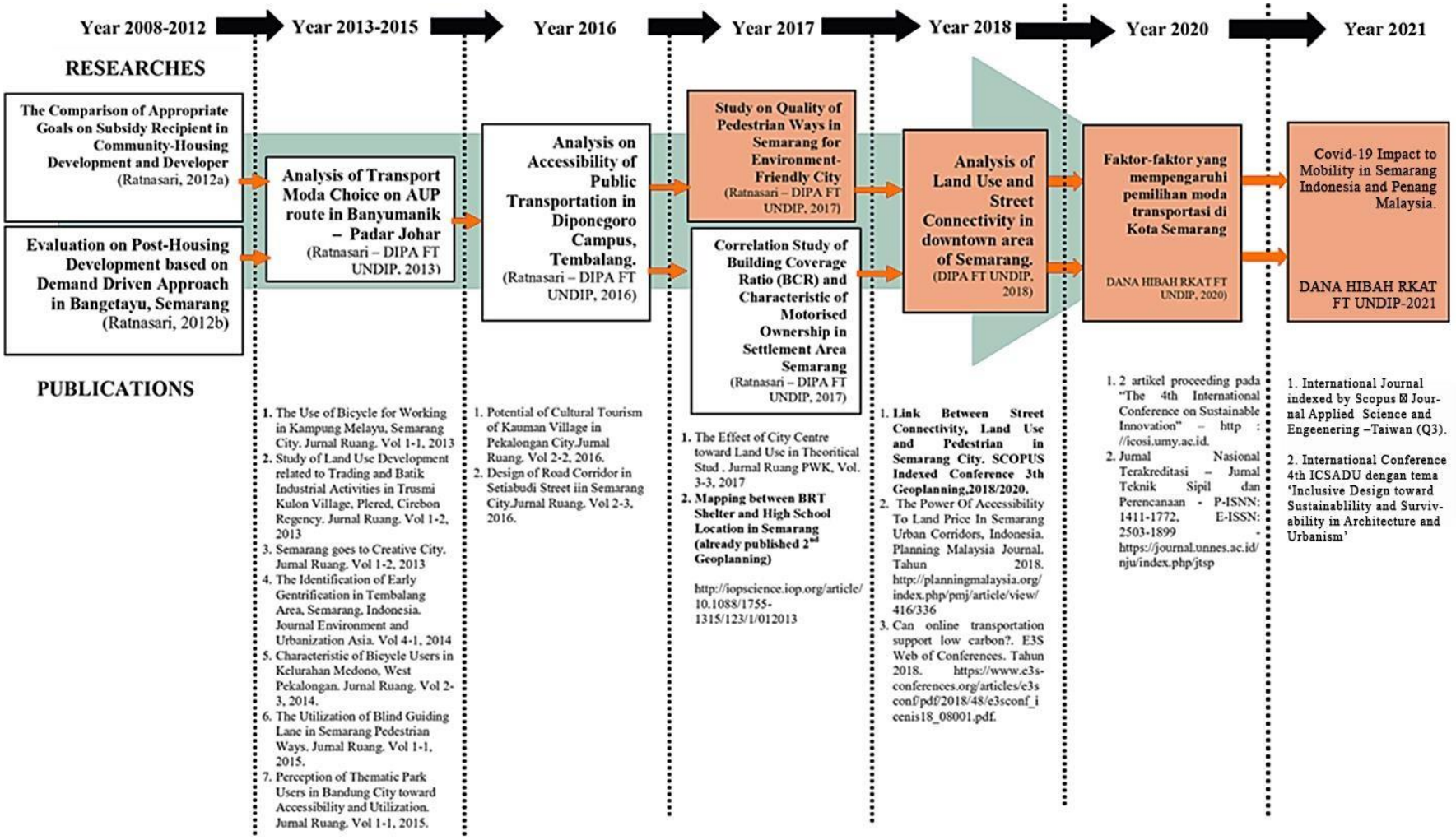
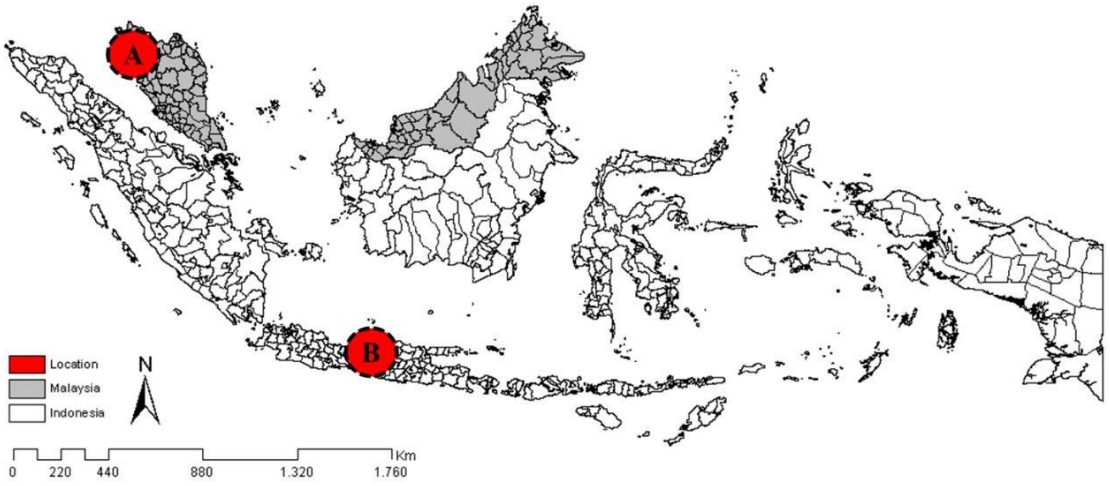


Figure 2. Roadmap of Research

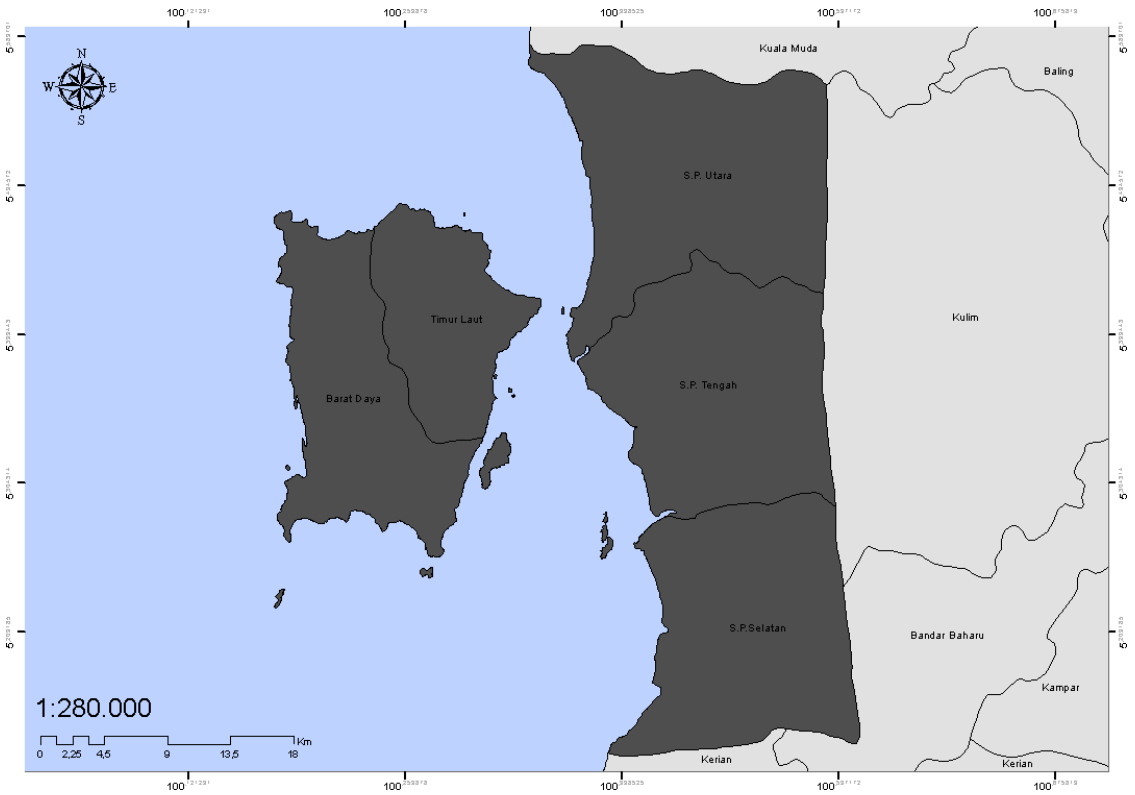
CHAPTER 3. RESEARCH METHOD

3.1 Semarang, Indonesia and Penang Malaysia Case Study

Semarang Indonesia and Penang Malaysia selected as research locations because of the similarity in their existing conditions. The population of Semarang in 2020 will reach 1,680 thousand people, while the population of Penang in 2020 will reach 1,767. The population migration level in these two locations tends to be high, especially movements that lead into the city. The availability of employment opportunities and complete facilities is a big attraction for suburban areas to move to the city centre. It is recorded that from 2000 to 2020 (20 years), there was an increase in population by 70% in Penang Malaysia, which is predicted to continue to increase in the following years. Similar to Penang Malaysia, Semarang City, as one of the largest cities in Central Java, has experienced an increase in population by 20% from 2000 to 2020 or within 20 years. Based on Figure 1, it can be seen that the locations of Penang and Semarang are very strategic, which are directly adjacent to the sea area, which is the national and international trade route. Its strategic location causes population movement from outside the region to potentially higher.



(a)



(b)

(c)

Figure 3. Research location; (a) Orientation, (b) Penang Malaysia, (c) Semarang Indonesia

Positive cases of Covid-19 in Penang Malaysia in 2021 recorded as many as 286 thousand cases with a death rate of 8 (weather.com, 2021). As with other cities, Penang also applies social restrictions and restrictions on the physical distance between communities to reduce the spread of Covid-19 cases. October to February is the highest peak of the spread of Covid-19 in this city. Meanwhile, Semarang is one of the cities with the most extensive Covid-19 spread in Indonesia. There have been 18 thousand positive cases of Covid-19 in Semarang City, with a total of 1,668 deaths (siagacorona.semarangkota.go.id, 2021). The Covid-19 case in Semarang City dominated by the male population of 55.7% with a productive age range (20-54 years). In line with this, the increasing number of cases in Semarang City caused by a large number of outdoor activities carried out by the community, especially the young people, by ignoring health protocols.

3.2 Research Methodology

According to Carteni (2020), the factors that can support the movement or mobility of the population are accessibility, distance, and movement reasons. Based on the background of the problem, in general, the indicators used in this study are in the form of accessibility (road and transportation networks), demography (population density and movement patterns), land use, distribution of buildings, and positive cases of Covid-19 in 2021 in each location. Table I, shows that the data collection method will be carried out by optimizing secondary data sources such as the Covid-19 Penang and Semarang data centers (website), spatial data centers, and demographic data centers according to analysis needs.

Table I. Research Analysis Process

Num	Input		References	Method	Output
1.	Demographics	Population density	Website	Quantitative descriptive analysis	Charts and Tables
		Movement Pattern	Google Maps (OSM)	Spatial Analysis Query	Spatial Mapping
2.	Accessibility	Road Network	https://export.hotosm.org/en/v3/	Multiple Ring Buffer spatial analysis	
		Transportation			
3.	Post Suburban	Building		Quantitative descriptive analysis	
		Land Use			

Num	Input	References	Method	Output
4.	Positive Covid-19 Case	https://siagacorona.semarangkota.go.id https://weather.com	Interpolation Analysis and Query (Unique Value).	
5.	Quantitative Relationships Between Variables	Analysis	T Test Linier Regression Analysis	Quantitative Relationship Model.
	Spatial Relationship Between Variables		Weigthed Overlay (WO)	Spatial Relations Model.

Source : Results of Analysis, 2021.

Based on Figure 2, the analysis method used in this study is a quantitative descriptive method combined with spatial-based data analysis by the study area's existing conditions. Demographic data can be visualized in a diagrammatic form for descriptive analysis. The land use data for each location will use spatial analysis in a simple query using the ArcGIS application. Data on the distribution of Covid-19 cases can be processed using spatial analysis tools in data interpolation or Query (Unique Value) using ArcGIS. Meanwhile, for road network data and the distribution of transportation facilities, the method of accessibility analysis (multiple ring buffer) can be used in the ArcGIS application.

As a basis for seeing the direction of urban development, time-series data for the distribution of buildings in Penang and Semarang are used (2010 and 2020), which use the simple Query spatial data presentation method on ArcGIS and satellite imagery. The overall result will analyze the spatial and quantitative relationships between demographic, accessibility, and land use indicators of the spread of Covid-19 in Penang and Semarang. To see the spatial relationship will be used an analysis tool in the form of Weighted Overlay (WO) by scoring and weighting each analysis variable. The results of the analysis of demographic characteristics (population density), movement patterns (accessibility), land use, and the distribution of Covid-19 in each sub-district can be overlaid with the following weightings:

Table II. Weighted Overlay (WO) Component

Num.	Variable	Category	Weighting (Scale 3)*	Score (100%)
1.	Regional Accessibility.	High	3	30%
		Moderate	2	
		Low	1	

Num.	Variable	Category	Weighting (Scale 3)*	Score (100%)
3.	Population density.	High	3	30%
		Moderate	2	
		Low	1	
3.	Building Density (number of buildings / land area)	High	3	20%
		Moderate	2	
		Low	1	
4.	Land Use.	Settlement	3	20%
		RTH (Forest, Garden etc.)	1	
		Trade and Services	3	
		Industry	2	
		Offices	3	

*Note: Researcher's Assumptions Can Be Adjusted; * getting closer to three the more critical.*

Based on Figure 4, shows that the WO results from several variables then produce a critical zone which will be overlaid again with the distribution of buildings to show the new urban structures in Semarang and Penang Malaysia. The results will be used as recommendations for designing a population movement system that is adaptive to the spread of Covid-19. While the quantitative relationship will use the T-test linear regression analysis on the SPSS application so that the relationship pattern and the resulting relationship between variables can be obtained. The requirements for linear regression analysis (partial T-test) are if the result of the T coefficient is greater than the T table and the resulting significance value must be less than 0.05 (<0.05). Based on these results, it can also be seen that the differences or similarities between the respective research locations, both Penang and Semarang, can be taken into consideration in urban planning for Covid-19. The linear regression formula for the T-test at SPSS is as follows:

$$Y = a + b1(X1) + b2(X2) + b3(X3) + b4(X4) + \ldots\ldots \quad [2]$$

Where;

Y : Positive data for Covid-19 by District 2021

a : Constants

b1..b4 : Regression Coefficient

X : Independent Variable in Research

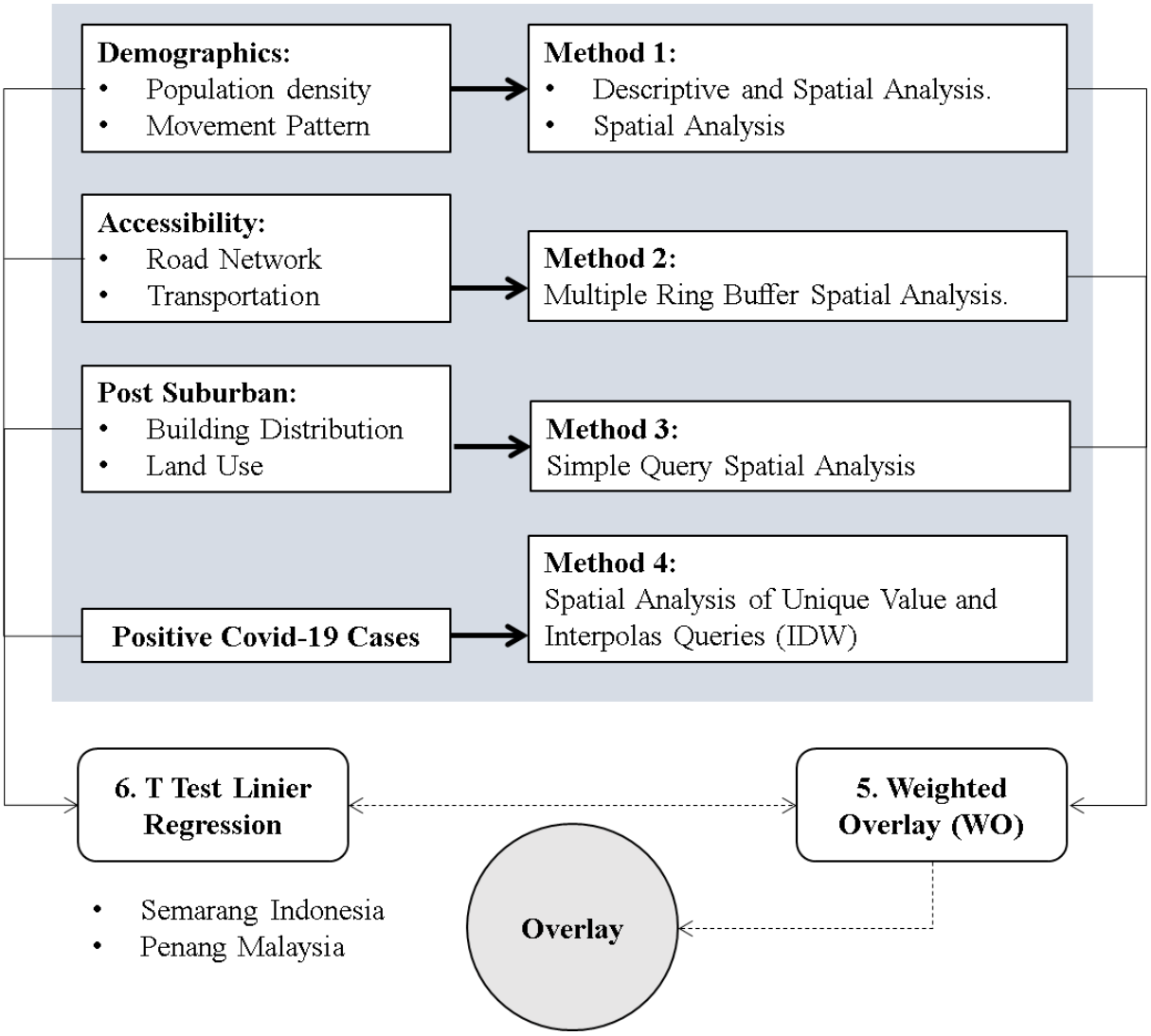


Figure 4. Research Analysis Process

CHAPTER 4. BUDGET AND RESEARCH SCHEDULE

4.1 Budget of Research

The funding source for this research is the source of funding for the RKAT of the Faculty of Engineering, Diponegoro University, Fiscal Year 2021. The budget proposed for this research is IDR 30,000,000. Research funds are allocated for four types of expenditure, including spending on honoraria outside research lecturers, shopping for goods, spending on other non-operational goods, and spending on trips. The following is a summary of the cost budget based on the type of expenditure listed in Table III:

Table III. Research Cost Plan

Num.	Type of Expenditure	Amount of Fee (Rp)
a	**b**	**c**
1.	Honorarium spending outside of research lecturers (Honorarium for field assistants, research assistants, and others).	7.100.000
2.	Shopping for goods (medical equipment, medicines, stationery materials, A4 paper, printer ink, toner and others).	6.400.000
3.	Shopping for Other Non-Operational Goods (Publication of articles in international seminars indexed by Scopus, etc.).	11.200.000
4.	Expenditure Travel / SPD (Travel to the City of Jakarta for field surveys and institutional surveys).	5.300.000
Total Biaya (Rp)		30.000.000

Source : Results of Analysis, 2021

4.2 Research Schedule

This research was conducted for seven months, starting in 2021. There were several activities carried out in this research, and the details of the activities can be seen in Table IV as follows:

Table IV. Research Activity Schedule

Num.	Type of activity *	Mounth						
		April	Mey	June	July	Aug	Sept	Oct
1.	Technical planning and research proposal development.							
2.	Submission of research proposals.							
3.	Coordination and division of research team work.							
4.	Field data collection.							
5.	Data recapitulation and further coordination.							
6.	Follow-up survey (if there is a lack of data)							
7.	Research implementation.							
8.	Identification and mapping of potential problems.							
9.	Analysis process.							
10.	Publication of research results.							
11.	Final reporting and collection.							

Source : Results of Analysis, 2021

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ATTACHMENT

Lampiran A. Justifikasi Anggaran Penelitian

Ketua Penelitia : Dr. Ars. Anita Ratnasari Rakhmatulloh, S.T.,M.T.
Golongan : IIIC
Departemen : Perencanaan Wilayah dan Kota
Fakultas : Teknik
Judul Penelitian : Covid-19 Impact to Mobility in Semarang Indonesia and Penang Malaysia.
Total Dana (100%) : Rp. 30.000.000,-
PPh Pasal 21 (5%) : Rp 2.000.000,-
Penerimaan (95%) : Rp. 28.000.000,-

No.	Uraian	Vol	Satuan	Biaya Satuan (Rp)	Jumlah (Rp)
a	b	c	d	e	f
I.	**Belanja Honorarium diluar Dosen Peneliti.**				
	Sekretariat Peneliti (1 Org x 3 Bulan = 3 OB)	3	OB	300.000	900.000
	Pembantu Peneliti (1 Org x 60 Jam)	60	OJ	25.000	1.500.000
	Pembuat Peta (1 Org x 1 hari = 1 OH)	1	OH	1.550.000	1.550.000
	Pengolah Data (1 Org x 1 hari = 1 OH)	1	OH	1.550.000	1.550.000
	Pembantu Lapangan (2 Org x 10 hari = 20 OH)	20	OH	80.000	1.600.000
	Sub Total				7.100.000
II.	**Belanja Barang.**				
	Pembelian Flashdisk	2	Buah	175.000	350.000
	Pembelian ATK	1	Ls	710.000	710.000
	Pembelian Kertas A4	2	Rim	32.500	65.000
	Pembelian CD-RW	2	Pack	150.000	300.000
	Refil Catridge Hitam Canon E-500	5	Buah	37.000	185.000
	Refil Catridge Warna Canon E-500	5	Buah	61.000	305.000
	Pembelian Catridge Hitam Canon E-500	4	Buah	180.000	720.000
	Pembelian Catridge Warna Canon E-500	4	Buah	225.000	900.000
	Pembelian Toner Printer HP 1020 Seri 12A	1	Buah	950.000	950.000
	Pembelian Hansanitizer Merk Detol 50ml	1	Dos	700.000	700.000

	Pembelian Masker N94	10	Dos	30.000	300.000
	Biaya Konsumsi Makan (2 Org x 7 Hari; 1 Org x 1 Hari @Org Rp.25.000)	15	Dos	25.000	375.000
	Biaya Konsumsi Snack (2 Org x 7 Hari; 1 Org x 1 Hari @Org Rp.10.000)	15	Dos	10.000	150.000
	Penggandaan Proposal	4	Eksemp	35.000	140.000
	Penggandaan Laporan Akhir	5	Eksemp	50.000	250.000
	Sub Total				6.400.000
III.	**Belanja Barang Non Operasional Lainnya.**				
	Biaya Seminar Internasioanl/Prosiding Terindeks Scopus.	1	Kali	2.000.000	3.000.000
	Biaya Jurnal Internasional Terindeks Scopus	1	Kali	4.500.000	4.500.000
	Biaya Proof Reading	2	Kali	1.850.000	3.700.000
	Sub Total				11.200.000
IV.	**Belanja Perjalanan/SPD**				
	Biaya Survei Kota Semarang Indonesia	2	OH	750.000	1.500.000
	Biaya Survei Penang Malaysia	2	OH	1.500.000	3.000.000
	Biaya Transportasi dalam Kota	2	OH	400.000	800.000
	Sub Total				5.300.000
				Jumlah (Rp)	30.000.000

Lampiran B. Susunan Organisasi Tim Pelaksana dan Pembagian Tugas

No.	Nama/NIP/NIDN	Departemen	Bidang Ilmu	Alokasi Waktu	Uraian Tugas
1.	Dr. Ars. Anita Ratnasari Rakhmatulloh, ST MT / 197407202098032001/ 0020077403	PWK	- Sistem Transportasi - Pemodelan - Tansportasi - Perencanaan Kota	12 Jam/minggu	- Mengkoordinasikan seluruh proses penelitian. - Mencatat seluruh kegiatan pelaksanaan. - Mempersiapkan publikasi. - Mempersiapkan penyusunan laporan penelitian. - Mengadakan koordinasi secara berkala dengan anggota penelitian untuk mengoptimalkan kinerja. - Melakukan analisis regresi linier uji t untuk mengetahui hubungan antar variabel.
2.	Diah Intan Kusumo Dewi, S.T.,M.Eng / 197404092008012010 / 0009047403	PWK	- Manajemen prasarana dan sarana perkotaan - Transportasi - Perencanaan Kota	10 Jam/Minggu	- Memepersiapkan bahan pemantauan penelitian. - Mempersiapkan bahan presentasi kelayakan penelitian. - .Menganalisis Aksesibilitas di Kota Semarang dan Penang Malaysia. - Menganalisis hubungan spasial antar variabel menggunakan analisis Weigthed Overlay (WO) dengan ArcGIS.

No.	Nama/NIP/NIDN	Departemen	Bidang Ilmu	Alokasi Waktu	Uraian Tugas
3.	Dr. Ir. Wijayanti, M.Eng / 197407202098032001 /0020077403	Arsitektur	- Smart Living	8 Jam/Minggu	- Mengidentifikasi Persebaran Covid-19 di Kota Semarang. - Mempersiapkan proses pencarian data sekunder dan primer
4.	Dr. Yasser Arab	USM Malaysia	- Housing, Building and Planning	8 Jam/Minggu	- Mengkoordinasi pengumpulan data penelitian di Penang Malaysia. - Melakukan analisis karaktersitik demografi dan pergerakan penduduk Penang Malaysia.
5.	Kamelia Balqis / 21040117120014	PWK	- Perencanaan Wilayah dan Kota	3 Jam/Minggu	- Melakukan pengumpulan dan pengolahan data penelitian.
6.	Jihan Hafizha / 21040117140055	PWK	- Perencanaan Wilayah dan Kota	3 Jam/Minggu	- Melakukan pengumpulan dan pengolahan data penelitian.

Lampiran C. Biodata Ketua dan Anggota Penelitian

BIODATA KETUA PENELITI

A. Identitas Diri

1.	Nama Lengkap (dengan gelar)	Dr. Ars. Anita Ratnasari Rakhmatulloh,S..T, M.T
2.	Jenis Kelamin	Perempuan
3.	Jabatan Fungsional	III C / Lektor
4.	NIP	197407201998032001
5.	NIDN	0020077403
6.	E-mail	anita.ratnasari.r@gmail.com
7.	Tempat dan Tanggal Lahir	Kudus, 20 Juli 1974
8.	Nomor Telepon/ HP	082133049555
9.	Alamat Kantor	Jurusan Perencanaan Wilayah dan Kota, FT – UNDIP Jl. Prof. Sudarto SH, Kampus UNDIP Tembalang
10.	Nomor Telepon/ Faks	024-7460054
11.	Lulusan yang Telah Dihasilkan	S-1 = Org; S-2 = Org; S-3 = Org
12.	Mata Kuliah yg Diampu	1. Kewirausahaan
		2. Pengantar Proses Perencanaan
		3. Kependudukan
		4. Pemodelan Transportasi

B. Riwayat Pendidikan

	S – 1	S – 2	S – 3
Nama Perguruan Tinggi	Universitas Diponegoro	Institut Teknologi Bandung	Pasca Sarjana Universitas Diponegoro
Bidang ilmu	Perencanaan Wilayah dan kota	Transportasi	Program Doktor Teknik Arsitektur dan Perkotaan
Tahun Masuk – Lulus	1992 – 1997	2000 – 2002	*Candidat Doktor*
Judul Skripsi/Tesis/Disertasi			
Nama Pembimbing/Promotor			

C. Pengalaman Penelitian Dalam 5 Tahun Terakhir (Bukan Skripsi, Tesis, maupun Diseratsi)

No.	Tahun	Judul Penelitian	Pendanaan	
			Sumber*	Jml (Juta Rp)
1	2020	Faktor yang Mempengaruhi Pemilihan Moda Transportasi di Kota Semarang	RKAT FT UNDIP	30 juta
2	2020	Model Permintaan Perjalanan Pengguna BRT Trans Semarang yang Berjalan Kaki Melalui Metode 3D (Density, Diversity, Design) di Kota Semarang	Kemenristek	98.7 juta
3	2019	Modelling of Bus Rapid Transit Impact on Land Use and Land Value in Semarang, Indonesia	Selain APBN DPA LPPM UNDIP	57.9 juta
4	2019	Disrupting Mobility Of Modal Choice Behavior In Semarang City	RKAT FT UNDIP	40 juta
5	2019	Pengaruh Keruangan Skala Manusiawi terhadap Tingkat Kriminalitas pada Pola Pergerakan di Kawasan Pendidikan	RKAT FT UNDIP	20 juta

		Tembalang Semarang		
6	2018	Kajian Integrasi Jaringan Jalan, Tata Guna Lahan Dan Jalur Pejalan Kaki Di Kawasan Pusat Kota Semarang	RKAT FT Undip	20 juta
7	2018	Dampak Transportasi Berbasis Aplikasi Terhadap Penyerapan Tenaga Kerja di Kota Semarang	RKAT FT Undip	11.3 juta
8	2017	Kajian Kualitas Jalur Pejalan Kaki di Kota Semarang dalam Rangka Menuju Kota yang Ramah Lingkungan (Anggota)	DIPA FT Undip	14 juta
9	2017	Correlation Study of Building Coverage Ratio (BCR) and Characteristic of Motorised Ownership in Settlement Area Semarang (Ketua)	DIPA FT Undip	18 juta
10	2016	Analisis Aksesibilitas Kendaraan Umum di Kampus Undip Tembalang	DIPA FT Undip	12 juta

** Tuliskan sumber pendanaan baik skema penelitian DIKTI maupun sumber dari lainnya.*

D. Pengalaman Pengabdian Kepada Masyarakat dalam 5 Tahun Terakhir

No.	Tahun	Judul Pengabdian Kepada Masyarakat	Pendanaan	
			Sumber*	Jml (Juta Rp)
1	2020	Sosialisasi Kebutuhan Angkutan Massal Berbasis Jalan dengan Pendekatan Transit-Oriented Affordable Housing Development (TOAHD) di Wilayah Aglomerasi Bregasmalang	RKAT FT Undip	10 juta
2	2019	Sosialisasi dan Diskusi Pemanfaatan Teknologi dan Internet Untuk Pengembangan UMKM Berbasis Rumah Kerajinan Eceng Gondok di Klaster Klinting Ambarawa	RKAT FT Undip	8 juta
3	2019	Penyiapan Platform Digital Jurnal Riptek	Mandiri (Lab pengembangan kota)	5 juta
4	2019	FGD Pembangunan Perumahan secara Formal terhadap Penyelenggara/stakeholder	Mandiri (Lab pengembangan kota)	5 juta
5	2019	Sosialisasi Pembangunan Perumahan yang Layak Huni dan Terjangkau bagi Masyarakat berpenghasilan rendah	Mandiri (Lab pengembangan kota)	5 juta
6	2018	Pemetaan Desa Ngaren Kecamatan Ngadirejo Kabupaten Temanggung	RKAT FT Undip	5 juta
7	2018	Pendampingan Kajian Pemindahan Pusat Pemerintahan Kab. Brebes	Mandiri (Lab pengembangan kota)	5 juta
8	2018	Edukasi Lead Time Untuk Mengelola Produksi Enceng Gondok di Ambarawa Kab. Semarang	Mandiri (Lab pengembangan kota)	5 juta
9	2018	Penyusunan RDTR Kecamatan Sungai Selan, Kab. Bangka tengah	Mandiri (Lab pengembangan kota)	5 juta
10	2017	Teaching Pedestrian Untuk Anak Sekolah Dasar di Perjalanan Menuju Sekolah	Mandiri (Lab pengembangan kota)	5 juta
11	2017	Teaching Pedestrian Untuk Anak Sekolah Dasar di Taman Terbuka	Mandiri (Lab pengembangan kota)	5 juta
12	2017	Sosialisasi Berkendaraan Cerdas Bagi Pelajar Sekolah Menengah Atas Di Kota Semarang	Mandiri (Lab pengembangan kota)	5 juta

13	2017	Sosialisasi Peningkatan Kualitas Permukiman Kumuh di Kelurahan Demaan Kecamatan Jepara Kabupaten Jepara	DIPA Fakultas Teknik Undip Tahun 2017	5 juta
14	2016	Pengembangan Usaha berbasis Rumah (Home based Enterprises/HBE) untuk Peningkatan Pendapatan Masyarakat di RW II Kelurahan Ledok, Kecamatan Argomulyo Salatiga	DIPA Fakultas Teknik Undip Tahun 2016	5 juta
15	2016	Taman Hijau Untuk SDN 02 Kelurahan Kandri Gunungpati Kota Semarang	DIPA Fakultas Teknik Undip Tahun 2016	5 juta
16	2016	Sosialisasi Penyusunan Masterplan dan Rencana Tindak Penataan Lingkungan Permukiman Gedawang	DIPA Fakultas Teknik Undip Tahun 2016	5 juta
17	2016	Sosialisasi Pembangunan dan Pengembangan Perumahan Rakyat di Kendal	DIPA Fakultas Teknik Undip Tahun 2016	5 juta

** Tuliskan sumber pendanaan baik skema pengabdian kepada masyarakat DIKTI maupun dari sumber lainnya.*

E. Publikasi Artikel Ilmiah Dalam Jurnal alam 5 Tahun Terakhir

No.	Judul Artikel Ilmiah	Nama Jurnal	Volume/ Nomor/ Tahun
1	*Pengaruh Pusat Kota Terhadap Nilai Lahan. Sebuah Kajian Teoritis*	Jurnal Ruang	Vol 3 No 3 2017
2	Dampak Transportasi Daring Terhadap Penyerapan Tenaga Kerja Dan Peningkatan Kesejahteraan Di Kota Semarang	Jurnal Pengembangan Kota	Volume 6 Nomor 2: Desember 2018, Hal. 127-134
3	The Characteristic of Online Transportation Services and Provision in Semarang City	Jurnal Teknik Sipil dan Perencanaan	Vol 20, No 2 (Desember 2018) Hal. 56 – 64
4	The Power Of Accessibility To Land Price In Semarang Urban Corridors, Indonesia	Journal of the Malaysian Institute of Planners	Volume 16 Issue 1, 25 Juli 2018, Page 118 – 129
5	Preventing Urban Crime for Gender Mobility through Human Scale in Trans Semarang Bus Stop	Jurnal Tataloka	Volume 22 No. 2, May 2020 Hal. 287-298

F. Pemakalah Seminar Ilmiah (*Oral Presentation*) dalam 5 Tahun Terakir

No.	Nama Pertemuan / Seminar	Judul Artikel Ilmiah	Waktu dan Tempat
1	3rd International Conference on Regional Development (ICRD), Undip	Accessibility and Smart Growth	Semarang 9-10 November 2016
2	The 2nd Geoplanning International Conference	What is The Role of Land Value in The Urban Corridor?	Solo, 9 Agustus 2017
3	The 2nd Geoplanning International Conference	Mapping Relationship Between BRT Shelter and High School Location	Solo, 9 Agustus 2017
4	3rd ICENIS 2018 (International Conference on Energy, Environment and Information system)	Can Online Transportation Support Low Carbon?	Semarang, 14-15 Agustus 2018
5	3rd Geoplanning International Conference	Link Of Road Network, Land Use, and Pedestrian Ways in CBD of Semarang	Semarang 29 - 30 Agustus 2018
6	The 2nd International Conference on Smart City	Effect of Weather for Demand of Online Transportation in Tembalang Semarang	2018

7	Effect of Weather for Demand of Online Transportation in Tembalang, Semarang	The 2nd International Conference on Smart City Innovation (ICSCI)	Semarang, 9 Oktober 2019
8	Analyzing Human Scale Space on Street Characteristics in The Tembalang Education Area	The 1st International Conference on Urban Design and Planning (ICUDEP)	Semarang, 10 September 2019
9	Bus Trans Semarang toward Sustainable Transportation in Semarang City The 1st International	Conference on Urban Design and Planning (ICUDEP)	Semarang, 10 September 2019
10	Can Building Density Influence the Amount of BRT Trans Semarang Ridership?	The 1st International Conference on Urban Design and Planning (ICUDEP)	Semarang, 10 September 2019
11	Identification of Urban Vitality at Bus Rapid Transit (BRT) Halte in Semarang City Centre	The 1st International Conference on Urban Design and Planning (ICUDEP)	Semarang, 10 September 2019
12	Dominant Influence Factors on Land Price In The Sub Urban Area of Semarang	5th International Conference-Workshop on Sustainable Architecture and Urban Design (ICWSAUD2020)	22-24 September 2020 (online webex)

G. Karya Buku dalam 5 Tahun Terakhir

No.	Judul Buku	Tahun	Jumlah Halaman	Penerbit
1				

H. Perolehan HKI dalam 5 – 10 Tahun Terakhir

No.	Judul/ Tema HKI	Tahun	Jenis	Nomor P/ID
1				
2				

I. Pengalaman Merumuskan Kebijakan Publik/ Rekayasa Sosial Lainnya dalam 5 Tahun Terakhir

No.	Judul/Tema/Jenis Rekayasa Sosial Lainnya yang Telah Diterapkan	Tahun	Tempat Penerapan	Respon Masyarakat
1				
2				

J. Penghargaan dalam 10 tahun Terakhir (dari pemerintah, asosiasi atau institusi lainnya)

No.	Jenis Penghargaan	Institusi Pemberi Penghargaan	Tahun
1			
2			

Semua data yang saya isikan dan tercantum dalam biodata ini adalah benar dan dapat dipertanggungjawabkan secara hukum. Apabila dikemudian hari ternyata dijumpai ketidaksesuaian dengan kenyataan, saya sanggup menerima sanksi.

Demikian biodata ini saya buat dengan sebenarnya untuk memenuhi salah satu persyaratan dalam pengajuan **'Penelitian Strategis RKAT Fakultas Teknik Universitas Diponegoro Tahun Anggaran 2021'.**

Semarang, 22 Februari 2021.
Pengusul,

Dr. Ars. Anita Ratnasari Rakhmatulloh, ST, MT
NIP. 197407201998032001

BIODATA ANGGOTA PENELITI (1)

A. Identitas Diri

1	Nama Lengkap (dengan gelar)	Diah Intan Kusumo Dewi, ST, MEng
2	Jenis Kelamin	Perempuan
3	Jabatan Fungsional	Asisten Ahli
4	NIP/NIK/Identitas lainnya	19740409 200801 2 010
5	NIDN	0009047403
6	Tempat dan Tanggal Lahir	Semarang, 9 April 1974
7	E-mail	diah.intan@gmail.com
9	Nomor Telepon/HP	081901175384
10	Alamat Kantor	Departemen PWK – FT Undip Jl Prof Sudharto, SH Tembalang, Semarang
11	Nomor Telepon/Faks	024-7460054
12	Lulusan yang Telah Dihasilkan	S-1 = … orang; S-2 = … orang; S-3 = … orang
13. Mata Kuliah yang Diampu		1. Studio Perancangan & Pembangunan Kota S1
		2. Perencanaan Tapak S1
		3. MKP (Kota Cerdas) S1
		4. Perancangan Kota S1
		5. MKP (Perilaku Masyarakat Dan Ruang Perkotaan) S1

B. Riwayat Pendidikan

	S-1	S-2	S-3
Nama Perguruan Tinggi	Undip	IHE	
Bidang Ilmu	Perencanaan Wilayah Dan Kota	Master of Engineering	
Tahun Masuk-Lulus	1999	2004	
Judul Skripsi/Tesis/Disertasi			
Nama Pembimbing/Promotor			

C. Pengalaman Penelitian Dalam 5 Tahun Terakhir

No.	Tahun	Judul Penelitian	Pendanaan	
			Sumber*	Jml (Rp)
1	2016	Kajian Kesiapan Masyarakat Sepanjang kali Beringin Dalam Menghadapi Banjir	DIPA FT Tahun 2016	Rp. 12.000.000
2	2017	Kajian Kualitas Jalur Pejalan Kaki Di Kota Semarang Dalam Rangka Menuju Kota Yang Ramah Lingkungan	DIPA FT	Rp. 14.000.000
3	2017	Correlation Study Of Building Coverage Ratio (BCR) And Characteristic Of Motorised Ownership In Settlement Area Semarang	DIPA FT	Rp. 20.000.000

No.	Tahun	Judul Penelitian	Pendanaan	
			Sumber*	Jml (Rp)
4	2018	Kajian Bangunan Bersejarah di Kelurahan Purwodinatan sebagai Pedoman Arahan Pelestarian Kawasan	RKAT FT Undip Tahun 2018	Rp. 11.300.000
5	2018	Kajian Integrasi Jaringan Jalan, Tata Guna Lahan, dan Jalur Pejalan Kaki di Kawasan Pusat Kota Semarang	RKAT FT Undip Tahun 2018	Rp. 20.000.000
6	2019	Pengaruh Keruangan Skala Manusiawi terhadap Tingkat Kriminalitas pada Pola Pergerakan di Kawasan Pendidikan Tembalang, Semarang	RKAT FT Undip Tahun 2019	Rp. 20.000.000
7	2019	Disrupting Mobility of Modal Choice Behavior in Semarang City	RKAT FT Undip Tahun	Rp. 40.000.000
8	2019	Transformasi Fisik Spasial dan Kebertahanan Kampung Pusat Kota di Segitiga Komersial Pandama Semarang	Sumber Dana selain APBN Undip Tahun anggaran 2019	Rp. 40.000.000
9	2019	Design of Framework of IT Governance for Regional Disaster Agency in Sleman, Yogyakarta.	Sumber Dana selain APBN Undip Tahun anggaran 2019	Rp. 61.750.000
10	2019	Modelling of Bus Rapid Transit on Land Use and Land Value in Semarang, Indonesi	Sumber Dana selain APBN Undip Tahun anggaran 2019	Rp. 57.900.000

D. Pengalaman Pengabdian Kepada Masyarakat dalam 5 Tahun Terakhir

No.	Tahun	Judul Pengabdian Kepada Masyarakat	Pendanaan	
			Sumber*	Jml (Rp)
1	2016	Sosialisasi Pengelolaan Sampah Rumah Tangga dengan Teknik Komposter di Kampung Plasansari Kelurahan Srondol Kulon Kota Semarang	DIPA FT Tahun 2016	Rp. 5.000.000
2	2016	Sosialisasi Desain Penataan Kawasan Perdagangan Jasa Pasar Pegandon dan Sekitarnya Dengan Konsep Pedestrian Mall di Kecamatan Pegandon Kabupaten Kendal	DIPA FT Tahun 2016	Rp. 5.000.000
3	2017	*Urban Farming* sebagai Pengembangan Pertanian Perkotaan Melalui Hidroponik Dengan Sistem *Wick* Di RW 23 Desa Batursari, Mranggen, Demak	DIPA FT	Rp. 4.000.000
4	2017	Focus Group Discussion (FGD) Perancangan Kawasan Permukiman Tepi Sungai dengan Konsep Eco Green Living Kelurahan Peterongan	Mandiri	Rp. 2.000.000

No.	Tahun	Judul Pengabdian Kepada Masyarakat	Pendanaan	
			Sumber*	Jml (Rp)
5	2017	Focus Group Discussion (FGD) Perancangan Kawasan Permukiman Tepi Sungai dengan Konsep Livable Eco-Riverfront Settlement in Lamper Tengah Gayamsari	Mandiri	Rp. 2.000.000
6	2018	Sosialisasi pengembangan wisata sekitar klenteng sam poo kong : Kampung Naga dan chineese Festival Waterfront	RKAT FT Undip Tahun 2018	Rp. 2.500.000
7	2018	Sosialisasi Film Dokumenter Kampung Bubutan Semarang	RKAT FT Undip Tahun 2018	Rp. 2.500.000
8	2019	Sosialisasi Perancangan Desa Agrowisata Kecamatan Tangen, Kabupaten Sragen	RKAT FT Undip Tahun 2019	Rp. 4.000.000

** Tuliskan sumber pendanaan baik dari skema pengabdian kepada masyarakat DRPM maupun dari sumber lainnya.*

E. Publikasi Artikel Ilmiah Dalam Jurnal alam 5 Tahun Terakhir

No.	Judul Artikel Ilmiah	Nama Jurnal	Volume/ Nomor/Tahun
1	Kajian Morfologi Kawasan Permukiman di Sepanjang Kali Beringin	Jurnal Ruang	Vol. 1 No. 4, Oktober Tahun 2015 ISSN: 1858-3881
2	Potensi Wisata Budaya Kampung Kauman di Kota Pekalongan	Jurnal Ruang	Vol. 2 No.2 Bulan April Tahun 2016
3	Perancangan Koridor Jalan Setiabudi Kota Semarang	Jurnal Ruang	Vol. 2 No.3 Bulan Juli Tahun 2016
4	Pola Ruang Kampung Batik Kauman, Pekalongan	Jurnal Ruang	Vol.3 No.3 Tahun 2017
5	What Are the Changes in the Use of Space in The Residential Neighborhood of Residence as A Place of Business?	Jurnal Teknik Sipil dan Perencanaan UNNES	Vol. 20 No, 1 Tahun 2018 p. 30-40
6	Connectivity Between Pedestrian Ways and BRT Shelter in Banyumanik and Pedurungan, Semarang	Jurnal Teknik Sipil dan Perencanaan UNNES	Vol. 2 No. 2 Tahun 2018 halaman 56-64
7	Pola Spasial Penggunaan Mobil dan Motor di Kelurahan Pedurungan Tengah Kota Semarang	Jurnal Plano Madani	Vol. 7 No. 2 Tahun 2018, halaman 185-195
8	Pola Perjalanan Siswa Sekolah Dasar Di Kecamatan Semarang Tengah	Jurnal Teknik PWK (Perencanaan Wilayah Kota) Undip	Vol.7 No.3 Tahun 2018 halaman : 190-199

No.	Judul Artikel Ilmiah	Nama Jurnal	Volume/ Nomor/Tahun
9	Connectivity Between Pedestrian Ways and BRT Shelter in Banyumanik and Pedurungan, Semarang	Jurnal Teknik Sipil dan Perencanaan UNNES	Vol. 2 No. 2 Tahun 2018 halaman 56-64
10	Pola Spasial Penggunaan Mobil dan Motor di Kelurahan Pedurungan Tengah Kota Semarang	Jurnal Plano Madani	Vol. 7 No. 2 Tahun 2018, halaman 185-195
11	Desain Lingkungan Kampung Kali Code Dalam Pencegahan Kriminalitas Berdasarkan Persepsi Masyarakat	Jurnal Arsitektura	Vol 17, No.1, 2019; halaman 131-140
12	Aktivitas Masyarakat Kampung Kali Code Terhadap Pencegahan Kriminalitas	Jurnal Teknik PWK (Perencanaan Wilayah Kota) Undip	Vol. 8 No. 2 Mei Tahun 2019, Halaman 71-76

F. Pemakalah Seminar Ilmiah (*Oral Presentation*) dalam 5 Tahun Terakhir

No	Nama Pertemuan Ilmiah / Seminar	Judul Artikel Ilmiah	Waktu dan Tempat
1	The 2nd Geoplanning, International Conference on Geomatic and Planning	Mapping between BRT shelter and high school location	Solo Paragon Hotel, Surakarta, 9-10 Agustus 2017
2	The 3rd International Conference on Energy, Environment and Information System (The 3rd ICENIS)	Can Online Transportation Support Low Carbon?	Semarang 14 Agustus 2018
3	The 3rd International conference on geomatic and planning (The 3rd Geoplanning)	Link of Road Network landuse and pedestrianways in CBD Semarang	Semarang, 29-30 Agustus 2018
4	The 3rd International conference on geomatic and planning (The 3rd Geoplanning)	Mapping Route for Children Go to School	Semarang, 29-30 Agustus 2018
5	The 2nd International Conference on Sustainability in Architectural Design and Urbanism (The 2nd ICSADU)	Historical Building Study in Purwodinatan Semarang As Urban Conservation Guidelines	Semarang, 29 Agustus 2018
6	The 2nd International Conference on Smart City	Effect of Weather for Demand of Online Transportation in Tembalang Semarang	2018
7	The 1st International Conference on Urban Design and Planning (ICUDeP) Tahun 2019	Identification Urban Vitality with Walking Environment by BRT Users on Semarang City Centre (Pandama Area)	10 September 2019 di Semarang

No	Nama Pertemuan Ilmiah / Seminar	Judul Artikel Ilmiah	Waktu dan Tempat
8	The 1st International Conference on Urban Design and Planning (ICUDeP) Tahun 2019	Sustainability of Prembaen as a Market Kampung in Inner City of Semarang	10 September 2019 di Semarang
9	The 1st International Conference on Urban Design and Planning (ICUDeP) Tahun 2019	Can Human Scale Prevent Urban Crimes For Gender in Trans Semarang Bus Stop?	10 September 2019 di Semarang
10	The 1st International Conference on Urban Design and Planning (ICUDeP) Tahun 2019	Analyzing of human scale space on street characteristics in the Tembalang education area	10 September 2019 di Semarang
11	The 1st International Conference on Urban Design and Planning (ICUDeP) Tahun 2019	Bus Trans Semarang towards sustainable transportation in Semarang City	10 September 2019 di Semarang
12	The 1st International Conference on Urban Design and Planning (ICUDeP) Tahun 2019	Could building density influence the amount of BRT Trans Semarang ridership?	10 September 2019 di Semarang

G. Karya Buku dalam 5 Tahun Terakhir

No	Judul Buku	Tahun	Jumlah Halaman	Penerbit
1				

H. Perolehan HKI dalam 5–10 Tahun Terakhir

No.	Judul/Tema HKI	Tahun	Jenis	Nomor P/ID
1	Etika berada di taman bagi siswa sekolah dasar di Indonesia	2019	Hak cipta	000152118
2	Etika Berjalan Kaki Bagi Siswa Sekolah Dasar di Indonesia	2019	Hak cipta	000134738

I. Pengalaman Merumuskan Kebijakan Publik/Rekayasa Sosial Lainnya dalam 5 Tahun Terakhir

No.	Judul/ Tema/ Jenis Rekayasa Sosial Lainnya yang Telah Diterapkan	Tahun	Tempat Penerapan	Respon Masyarakat
1				
2				

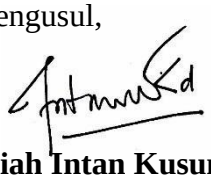
J. Penghargaan dalam 10 tahun Terakhir (dari pemerintah, asosiasi atau institusi lainnya)

No.	Jenis Penghargaan	Institusi Pemberi Penghargaan	Tahun
1	Karya satya satyalancana X Tahun	Presiden RI	2018
2			

Semua data yang saya isikan dan tercantum dalam biodata ini adalah benar dan dapat dipertanggungjawabkan secara hukum. Apabila di kemudian hari ternyata dijumpai ketidak-sesuaian dengan kenyataan, saya sanggup menerima sanksi.

Demikian biodata ini saya buat dengan sebenarnya untuk memenuhi salah satu persyaratan dalam pengajuan **'Penelitian Strategis RKAT Fakultas Teknik Universitas Diponegoro Tahun Anggaran 2021'.**

Semarang, 22 Februari 2021.
Pengusul,



Diah Intan Kusumo Dewi, ST, MEng
NIP. 197404092008012010

BIODATA ANGGOTA PENELITI (2)

A. Identity

1	Nama Lengkap (dengan gelar)	Dr. Ir. Wijayanti, Meng.
2	Jenis Kelamin	Perempuan
3	Jabatan Fungsional	III C / Lektor
4	NIP	196307111990012001
5	NIDN	0011076304
6	E-mail	wijayanti_jaft@yahoo.co.id
7	Tanggal Lahir	11 Juli 1963
8	Nomor Telepon/ HP	0878-3282-7227
9	Alamat Kantor	Departemen Arsitektur, FT – UNDIP Jl. Prof. Sudarto SH, Kampus UNDIP Tembalang
10	Nomor Telepon/ Faks	(024) 7470690
11	Lulusan yang Telah Dihasilkan	S-1 = Org; S-2 = Org; S-3 = Org
12	Mata Kuliah yg Diampu	1. Pengantar Arsitektur
		2. Perancangan Kota
		3. Perancangan Permukiman
		4. Perancangan Trimatra 1
		5. Perencangan Trimatra 2
		6. Teori Arsitektur 2
		7. Perancangan Arsitektur 1
13	Id Scopus / H-index	- / 0
14	Sinta Id / H-index	6667342 / 0
15	Google H-Index	0

B. Educational Background

	S – 1	**S – 2**	**S - 3**
Nama Perguruan Tinggi	Universitas Diponegoro	Toyohashi University of Technology	Program Doktor Teknik Arsitektur dan Perkotaan
Bidang ilmu	Arsitektur	Housing	Arsitektur
Tahun Lulus	1989	1995	2018
Judul Skripsi/ Tesis/ Disertasi			
Nama Pembimbing/ Promotor			

C. Research Experience in the Last 5 Years

No.	Tahun	Judul Penelitian	Pendanaan	
			Sumber	Jumlah (Jt Rp)
1				
2				
3				

D. Experience of Community Service in the Last 5 Years

No.	Tahun	Judul Pengabdian Kepada Masyarakat	Pendanaan	
			Sumber	Jumlah (Jt Rp)
1				
2				
3				

E. Publication of Scientific Articles in the Journal of the Last 5 Years

No.	Judul Artikel Ilmiah	Nama Jurnal	Volume/ Nomor/ Tahun
1	Spaces of the Elderly Based on the Living Arrangement (Case Study: Banyumanik Public Housing)	Procedia of Social and Behavioral Sciences 227 (2016) 568-573	Vol 227 / Tahun 2016 Hal 568-573

2	Housing Adaptation in Public Housing by The Elderly Case Study: Banyumanik Public Housing in Semarang City, Indonesia	International Journal of Scientific and Research Publications	Volume 8, Issue 2, February 2018 ISSN 2250-3153

F. Scientific Seminar Speakers (Oral Presentation) in 5 Years The last option

No.	Nama Pertemuan / Seminar	Judul Artikel Ilmiah	Waktu dan Tempat
1	The 2nd International Conference on Smart City	Effect of Weather for Demand of Online Transportation in Tembalang Semarang	2018
2			

G. Books Work in the Last 5 Years

No.	Book Title	Year	Page Number	Publisher
1				
2				

H. Acquisition IPR in 5-10 Years

No.	Title / Theme IPR	Year	Type	Number P/ID
1				
2				

I. Public Policy / Social Engineering Experience Formulating in the

No.	Title / Themes / Social Engineering Type Others Who Have Implemented	Year	Implementation	The Community Response
1				
2				

J. Award in 10 years (from government, associations or other institutions)

No.	Type of Award	Institutional Award Giver	Year
1			
2			

Semua data yang saya isikan dan tercantum dalam biodata ini adalah benar dan dapat dipertanggungjawabkan secara hukum. Apabila dikemudian hari ternyata dijumpai ketidak-sesuaian dengan kenyataan, saya sanggup menerima sanksi.

Demikian biodata ini saya buat dengan sebenarnya untuk memenuhi salah satu persyaratan dalam pengajuan **Penelitian Unggulan Hibah Bersaing Dana RKAT Fakultas Teknik Undip Tahun Anggaran 2021.**

Semarang, 22 Februari 2021

Anggota Peneliti,

Dr. Ir. Wijayanti, Meng.

NIP. 196307111990012001

BIODATA ANGGOTA PENELITI (3)

A. Identity

1	Nama Lengkap (dengan gelar)	Dr. Yasser Arab
2	Jenis Kelamin	Laki-Laki
3	Jabatan Fungsional	Lector
4	NIP	-
5	NIDN	-
6	E-mail	yasserarab2005@yahoo.com
7	Tanggal Lahir	
8	Nomor Telepon/ HP	+60-142426181
9	Alamat Kantor	School of Housing, Building and Planning USM 11800 Penang, Malaysia
10	Nomor Telepon/ Faks	+ 604 - 653 5925
11	Lulusan yang Telah Dihasilkan	S-1 = Org; S-2 = Org; S-3 = Org
12	Mata Kuliah yg Diampu	Rak344 History and Theory Of Architecture I
		Ras102 Design Studio 2
		Ras604 Design Thesis 2
		Rat532 Architecture in Urban Design
		Rul674 Research Project
13	Id Scopus / H-index	-
14	Sinta Id / H-index	-
15	Google H-Index	-

B. Educational Background

	S – 1	**S – 2**	**S - 3**
Nama Perguruan Tinggi.	Ittihad Private University. Syria	Universiti Sains Malaysia	Universiti Sains Malaysia
Bidang ilmu	Architecture	Sustainable Architecture	Sustainable Architecture
Tahun Lulus	2009	2013	2019
Judul Skripsi/ Tesis/ Disertasi	-	Daylighting Study in Ottoman Single Pendentive Dome Mosques	Environmental Performance of High-Rise Apartment's Façade in Penang, Malaysia
Nama Pembimbing/ Promotor			

C. Research Experience in the Last 5 Years

No.	Tahun	Judul Penelitian	Pendanaan	
			Sumber	Jumlah (Jt Rp)
1				
2				

D. Experience of Community Service in the Last 5 Years

No.	Tahun	Judul Pengabdian Kepada Masyarakat	Pendanaan	
			Sumber	Jumlah (Jt Rp)
1				
2				

E. Publication of Scientific Articles in the Journal of the Last 5 Years

No.	Judul Artikel Ilmiah	Nama Jurnal	Volume/ Nomor/ Tahun
1	Thermal surface analysis on colonial style's apartment facades in Putrajaya, Malaysia	Advanced Science Letters	23(7), 2017
No.	**Judul Artikel Ilmiah**	**Nama Jurnal**	**Volume/ Nomor/ Tahun**
2	Comparative study of thermal surface analysis on high-rise apartment facades with colonial and neo-minimalist style design in Penang,Malaysia.	Advanced Science Letters	23(7), 2017

3	Investigating Urban Design Elements of Bandar Baru Sentul, Kuala Lumpur	International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies	8(3), 169–181, 2017
4	Study on Thermal Surface Performance on PostModern Apartment Façades in Penang, Malaysia	The Arab World Geographer	21:2-3, 183-192, 2018
5	Fundamental Study on Thermal Surface Analysis of Late Modern Styles' Apartments with Case Studies in Malaysia	MANZAR, the Scientific Journal of landscape	10(45), 16-25, 2018
6	Comparative Study on Shading Performance between Traditional and Neo-Minimalist Style Apartment in Malaysia	International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies	9(1), 59–66, 2018
7	Comparative Study on Shading Performance between Traditional and Neo-Minimalist Style Apartment in Malaysia	International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies	9(1), 59–66, 2018
8	A Study on Mental Mapping: Case of Government Buildings, George Town, Penang	International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies	9(3), 211–128, 2018
10	Shading Performances On Neo-Minimalist And Colonial Style Apartment In Penang, Malaysia	MANZAR, the Scientific Journal of landscape	11(46), 56-61, 2018
11	Shading Performances On Neo-Minimalist And Colonial Style Apartment In Penang, Malaysia	MANZAR, the Scientific Journal of landscape	11(46), 56-61, 2019

12	Elements Of Paths, Edges, Nodes, Districts And Landmarks In Fishing Village Waterfront, George Town, Penang	International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies	10(18), 2019
13	Ocean Conservation And Waste Prevention Centre: The Study Of Space Syntax In Recycling Facility	International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies	10(19), 2019
14	Fundamental Study On Thermal Surface Analysis Of Late Modern Styles'apartments With Case Studies In Malaysia	Manzar-The Scientific Journal Of Landscape	10(45), 16-25, 2019
15	Urban Design Elements' Analysis Of Bandar Enstek, Nilai Negeri Sembilan, Malaysia	International Transaction Journal of Engineering, Management, & Applied Sciences & Technologies	11(9), 2020

F. Scientific Seminar Speakers (Oral Presentation) in 5 Years The last option

No.	Nama Pertemuan / Seminar	Judul Artikel Ilmiah	Waktu dan Tempat
1	11th International Conference on Building Design, Civil, Materials, and Transportation Engineering (BDCMTE-17)	Thermal Surface Analysis on Modern Apartment's Façade in Penang, Malaysia	Dec. 14-15, 2017 Kuala Lumpur (Malaysia)
2	3rd International Conference-Workshop on Sustainable Architecture and Urban Design 2017 ICWSAUD2017	Understanding Elements of Paths, Edges, Nodes, Districts and Landmarks of Pulau Ketam West, Selangor	2017 Penang, Malaysia
3	3rd International Conference-Workshop on Sustainable Architecture and Urban Design 2017 ICWSAUD2017	Tanjung Api and Lumpur, Kuantan: A Study on Kevin Lynch's Urban Design Elements	2017 Penang, Malaysia
4	3rd Internasional ConferenceWorkshop on Sustainable Architecture and Urban Design 2017 ICWSAUD2017	A Study on Mental Mapping of Loke Yew-Pudu Area, Kuala Lumpur	2017 Penang, Malaysia

G. Books Work in the Last 5 Years

No.	Book Title	Year	Page Number	Publisher
1				

H. Acquisition IPR in 5-10 Years

No.	Title / Theme IPR	Year	Type	Number P/ID
1				

I. Public Policy / Social Engineering Experience Formulating in the

No.	Title / Themes / Social Engineering Type Others Who Have Implemented	Year	Implementation	The Community Response
1				

J. Award in 10 years (from government, associations or other institutions)

No.	Type of Award	Institutional Award Giver	Year
1			

Semua data yang saya isikan dan tercantum dalam biodata ini adalah benar dan dapat dipertanggungjawabkan secara hukum. Apabila dikemudian hari ternyata dijumpai ketidak-sesuaian dengan kenyataan, saya sanggup menerima sanksi.

Demikian biodata ini saya buat dengan sebenarnya untuk memenuhi salah satu persyaratan dalam pengajuan **Penelitian Unggulan Hibah Bersaing Dana RKAT Fakultas Teknik Undip Tahun Anggaran 2021.**

Semarang, 22 Februari 2021

Anggota Peneliti,

Dr. Yasser Arab

BIODATA ANGGOTA PENELITI (MAHASISWA)

1. Nama : Kamelia Balqis
   Departemen : Perencanaan Wilayah dan Kota
   Angkatan 2017
   NIM 21040117120014
2. Nama : Jihan Hafizha
   Departemen : Perencanaan Wilayah dan Kota
   Angkatan 2017
   NIM 21040117140055

Lampiran D. Surat Pernyataan Ketua Peneliti

SURAT PERNYATAAN KETUA PENELITI

Yang bertanda tangan di bawah ini:

Nama	: Dr. Ars. Anita Ratnasari Rakhmatulloh, S.T.,M.T
NIP/NIDN	: 197407202098032001/0020077403
Golongan	: Penata/IIIC
Jabatan Fungsional	: Lektor

Dengan ini menyatakan bahwa proposal penelitian saya dengan judul:

"Covid-19 Impact to Mobility in Semarang Indonesia and Penang Malaysia."

Penelitian ini diusulkan dala skema Penelitian Unggulan untuk tahun anggaran 2021 **bersifat original dan belum pernah dibiayai oleh lembaga/sumber dana lain.**

Bilamana dikemudian hari ditemukan ketidaksesuaian dengan pernyataan ini, maka saya bersedia dituntut dan diproses sesuai dengan ketentuan yang berlaku dan mengembalikan seluruh biaya penelitian yang sudah diterima ke kas negara.

Demikian pernyataan ini dibuat dengan sesungguhnya dan dengan sebenar-benarnya.

Semarang, 22 Februari 2021

Yang menyatakan,

Dr. Ars. Anita Ratnasari Rakhmatulloh, ST, MT
NIP. 197407201998032001