

# The Impact of Land Use Change and Factors Affecting the Settlements in Ambawang Corridor

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Abstract: The development of urban infrastructure in Indonesia is faced with increasingly complex problems, especially with the conversion of open land into unuseful space. This research was generally aimed to design the corridor of Ambawang with green infrastructure to obtain an ecological corridor room, meaning that there would be a balance between urban development and environmental sustainability. The purpose of this research was to analyze and predict the trend of development of a waking space in Ambawang corridor. This research also analyzed and predicted the development of a built-up space in Ambawang corridor as well as the causal factors and practices of growth settlements in metropolitan outskirts. This research used a qualitative-descriptive research method through field observations covering identification for the purpose of building space and infrastructure in Ambawang corridor. An analysis of existing conditions was done through the interpretation of aerial photographs and thematic maps of 2016 to know the spread of the spatial space built in Ambawang corridor. This research is expected to provide for policy-making with design guidelines (engineering guidelines) for planning and designing space and infrastructure built in Ambawang corridor.

## 1 INTRODUCTION

The district of Sungai Ambawang is adjacent to the district of Kuala Mandor B to the north, the district of Sungai Raya to the south, the city of Pontianak to the west, and the regency of Sanggau to the east. This research was based on the results of previous studies that have formulated the direction of the Ambawang corridor policy which is linked to the Spatial Plan of Kuburaya regency for the direction of the development of Ambawang corridor as a cross-provincial transportation route.

As how its future strategicness is predicted, in the future, there will be space growth along the road as well as population growth which will lead to an increased amount of built space. This urges the need for a built-up space that have been set to avoid sporadic development. Stakeholder involvement (Oberg, 2016) is also highly important to the structuring of Ambawang corridor on this Trans-Kalimantan Road.

An interesting phenomenon related to the development of suburban settlements in the Trans-Kalimantan Road corridor is the development of

suburban settlements. This development gives a bad impression that it is not adequate as a city housing environment or tends to have a decreased carrying capacity and that it forms an irregular settlement pattern.

The purpose of this study was to analyze and predict the development of the space built in Ambawang corridor as well as the causes and practices of the growth of settlements on the metropolitan outskirts. The existing supporting facilities made available for fulfilling space needs in the Trans-Kalimantan Road corridor are generally inadequate, necessitating a design guideline for planning and designing this area. This planning is also related as a guideline for the development of Ambawang District as an agropolitan area by utilizing undeveloped land as urban agriculture land. This has become very important because the district spatial plan is not yet optimal in developing this area. This planning takes into consideration built space and undeveloped space as a unity that support each other to develop this area as an agropolitan area. Be advised that papers in a technically unsuitable form will be returned for retyping. After returned the manuscript must be appropriately modified.

## 2 METHODS

This research was conducted through a field survey by interviewing several informants and through institutional surveys with scientific, legal, and empirical studies on performance measurement models that had already existed and/or had been implemented based on the literature. Questionnaires aimed at residents who lived along the corridor of the Trans-Kalimantan Road in five villages of Sungai Ambawang District were developed to find out the quality of the space in Ambawang corridor. As many as 20 questionnaires were disseminated to each village. The villages surveyed were Ambawang Kuala Village, Jawa Tengah Village, Durian Village, Korek Village, and Lingga Village. The location serving as the object of the regional research was the area along the Trans-Ambawang crossing that crosses Sungai Ambawang district. In much of the area to the left and right of this road are various activities, from residential, educational, health, office, public open space, and trading to service activities, such as activities in markets, banks, shops, workshops, stalls (*kios*), and inns. Therefore it was chosen to be used as a city.

## 3 RESULT AND DISCUSSION

The Trans-Kalimantan corridor is part of the primary collector lane that connects Pontianak City to Landak Regency and Tapat Fogapaten. This made this corridor the main route of movement from and to Ambawang River and its surroundings. With its role as a main circulation lane, it is not surprising that the vehicles passing through this corridor were very diverse. The Trans-Kalimantan corridor was characterized by a space that is quite diverse in terms of mass of buildings/functions existing along it. There was a space filled by residential buildings that begin to change functions on the left and right of the road. It was occupied by multifunctional buildings in the form of residential or retail buildings as well as buildings such as shophouses, street vendors, and plantations. Closer to the city center the corridor space had a different character as it predominantly functioned as a residential and retail area with a smaller scale of buildings. The corridor space was occupied by residential and retail buildings located close to the city center. The settlements in the Sungai Ambawang area were mostly developed by local developers, and a small portion of them were built independently by local communities. Settlements and

economic activities in the Sungai Ambawang area developed along the side of the collector road on the Trans-Kalimantan road, which is, administratively, directly adjacent to Pontianak City.

Based on the built area, housing in the Sungai Ambawang area included a type of small-scale housing. Housing complexes were built per lane with the width of the complex of plots ranging from 35 m to 45 m. In general, there were two typologies of settlements in the Sungai Ambawang area, namely 1) stage houses—houses with wooden stake foundations (stick poles), which are traditional houses of the Pontianak community but currently are being abandoned/in demand by the community and existing in a very small number and 2) tapak houses—houses with river lane foundations, similar to the houses on Java. The site was developed by developers and was garnering pretty much interest from the community.

Among the main strategic positions of the area along the Trans-Kalimantan road were hinterland or peripheral area and part of the metropolitan area of Pontianak City. There was a high demand from commuters for a place to live in and a center for warehousing in the Sungai Ambawang area. This was partly due to the availability of large enough land, accessibility, and the distance from pontianak city center which is still affordable. Settlements' being located on the outskirts of the city, comfortable atmosphere, and beautiful environment with low noise levels provided an added value to the Sungai Ambawang area as an alternative choice of residence. The arrangement of proportional and less dense residential areas in the center of the city (Pontianak), the availability of adequate settlement facilities and infrastructure, as well as the booming economic activities made this area the hinterland area with faster growth compared to other hinterland regions (Sungai Kakap and Seberang region), especially in the housing and trading/services sector. The relatively low price of land also had an impact on the price per unit of housing that is relatively cheap and affordable to the community. The following are the findings of a quantitative analysis of Sungai Ambawang district which are the priority for the development of the corridor area.

Table 1: Findings Regarding Land Use in Durian Village.

Assessment Aspects	Findings
Population Conditions	Eighty percent of the respondents were men, and 20% were women. Ninety percent of the respondents were elementary to secondary school graduates, and 10% had diploma

	degrees. With regard to profession, 40% of the respondents were temporary workers, and 60% had permanent jobs. Thirty percent of the respondents earned less than Rp1 million a month, and 70% earned more than Rp1 million. Twenty percent of the respondents considered that their income was insufficient for meeting their living needs, and 80% felt that their income was more than enough, some of which they could still save.
General Environmental Conditions	In general, 90% of the respondents had 1 family in one dwelling, and only 10% had more than 1 family. The status of the land owned by the entire respondents (100%) was self-owned. Ninety percent of the respondents had permanent buildings, and 10% had semi-permanent buildings. Eighty percent of the respondents left land for the yard and 20% did not. With regard to building age, 60% of the respondents occupied buildings less than 15 years of age and 40% occupied buildings more than 15 years of age. Sixty percent of the respondents had made repairs on their buildings more than 1 time, and 40% had never made any repair on their buildings at all.
Living/Business Environment Conditions	With regard to the condition of the business environment, 40% of the respondents used their land only as a residential area, and 60% used their land as places of business. In terms of the type of business undertaken by the respondents, 83% of the respondents were engaged in businesses in kiosks, and 13% were engaged in other fields. With regard to accessibility to environmental facilities, 30% of the respondents could reach the facilities easily from their environment, and 70% had to be from the outside of the environment to reach the nearest facility. In terms of building itself, 20% of the respondents were in an environment where the entire buildings were oriented towards the highway, and 80% were in an environment where not all buildings were oriented towards the road.
Environmental Facility Conditions	With regard to environmental facilities that were available on a graphical basis, 10% of the respondents used MCK (bath, wash, and toilet) facilities in the form of

	<i>cubluk</i> , and the other 90% used latrines in rivers or ponds. With regard to waste management, the whole respondents (100%) threw away their own garbage on their own land or in ditches. One-hundred percent of the respondents did not have any permanent construction of rainwater channels in their environment.
Environmental Physical Conditions	With regard to environmental physical conditions, 80% of the respondents experienced flooding in their environment, and 20% rarely or never experienced flooding in their environment. Environmental management in the form of community service was carried out by 70% of the respondents, while 30% did not carry out any environmental management. With regard to the availability of clean water, the entire respondents (100%) stated that they obtained the clean water from the well. As for environmental road construction, 20% of the respondents' environment had concrete roads, and 80% of the respondents' environment had dirt roads. In terms of the availability of electricity networks, 100% of the respondents' environment had been supplied with electricity.
Ownership Status	Fifty percent of the respondents had lived in the study area since before 1990, and the other 50% started to live there after 1990. All respondents (100%) considered that the location had an important value. With regard to ownership status, 90% of the respondents had land certificates, while the remaining 10% did not. Twenty percent of the respondents had IMBs (Permits for Building), and the rest (80%) did not.
Development and Type of Land	Of all of the respondents, 100% thought that there were environmental and technological developments. Twenty percent did not consider that there was a change in technology in their environment. With regard to land type before being owned by the respondents, 40% was residential area, and 60% was vacant land. Sixty percent of the respondents had occupied the land for 5–10 years, and the remaining 40% had occupied the land for more than 15 years.

Types of Land and Business	In the study area, 60% of the respondents used their land as locations for commercial business, while the other 40% only used it as residences. In terms of type of commercial business itself, 100% of the respondents were engaged in trading. Fifty percent of the respondents could reach environmental facilities easily, while 50% had to be from the outside of the environment. Fifty percent of the respondents used their land for residence as well as business, and the remaining 50% did not. As for ownership status, the whole land was private property.
Reasons for Selection and Land Allocation	Of the total respondents, 40% were indigenous, and 60% were migrants. With regard to reasons for location selection, 90% of the respondents chose locations because they were strategically situated, while 10% of the respondents chose locations for other reasons. As for the allocation of location selection, 90% of the respondents considered the locations to be crowd centers, and the other 10% did not.
Licensing and Land Development	In terms of business licensing, the entire respondents did not have any commercial business license. The areas of land owned by the respondents varied. Eighty percent of the respondents had land areas of less than 100 m <sup>2</sup> . Ten percent of the respondents had land areas of 100 m <sup>2</sup> -200 m <sup>2</sup> . Ten percent of the respondents had land areas of more than 200 m <sup>2</sup> . With regard to land development, 60% of the respondents chose to do business development, and the other 40% did not have any plan for land development in the future.
Understanding of the Spatial Plan (Spatial Plan)	All respondents were not aware of the RTRW (spatial planning) and did not understand the Spatial Plan of Kubu Raya.

Table 2: Findings Regarding Land Use in Lingga Village

Assessment Aspects	Findings
Population Conditions	Ninety percent of the respondents were men, and the remaining 10% were women. Sixty percent of the respondents were elementary to secondary school graduates, and 40% were college graduates and had

	a Bachelor's degree. With regard to profession, 60% of the respondents were temporary workers (e.g., construction workers or laborers), and only 40% had permanent jobs. Seventy percent of the respondents earned less than Rp1 million a month, and 80% felt that the income was not enough to meet their living needs. Meanwhile, 30% of the respondents earned from Rp1 million to more than Rp1 million, and only 20% felt that their income was more than enough to meet their living needs, some of which they could still save.
General Environmental Conditions	In general, 90% of the respondents had 1 family in one dwelling, and only 10% had more than 1 family. The status of the land owned by the entire respondents (100%) was self-owned. Sixty percent of the respondents had permanent buildings, and 40% had semi-permanent buildings. All respondents (100%) still left land on their land. With regard to building age, 60% of the respondents occupied buildings less than 15 years of age, and 40% occupied buildings more than 15 years of age. Ninety percent of the respondents had made repairs more than 1 time, and the rest (10%) had never made any improvement on their buildings at all.
Living/Business Environment Conditions	With regard to the condition of the business environment, 20% of the respondents used their land as places of business, and 80% used their land only as residences. With regard to business type, 100% of the respondents were engaged in home industries. With regard to accessibility to environmental facilities, 60% of the respondents could reach the facilities easily from their environment, and 40% had to be from the outside of the environment to reach the nearest facility. As for the building itself, 90% of the respondents were in an environment where the entire buildings were oriented towards the road, and 10% were in an environment where not all of the buildings were oriented towards the road.

<p>Environmental Facility Conditions</p>	<p>With regard to environmental facilities that are available on a graphical basis, 60% of the respondents used MCK (bath, wash, and toilet) facilities in the form of <i>cubluk</i>, and 40% used latrines in rivers or ponds. With regard to environmental waste management, 60% of the respondents threw their own waste on their own land or in ditches, and only 40% of the waste management was carried out by the environment. One-hundred percent of the respondents did not have any permanent rainwater channel construction in their environment.</p>		<p>not consider that technological changes had occurred in their environment. With regard to the type of land, 40% of the land owned by the respondents was a residential area, 50% was empty land, and 10% was rice fields. Forty percent of the respondents had occupied the land for 5–10 years, and the remaining 60% had occupied the land for more than 15 years.</p>
<p>Environmental Physical Conditions</p>	<p>With regard to environmental physical conditions, 40% of the respondents experienced flooding, and 60% rarely or never experienced flooding in their environment. Environmental management in the form of community service was carried out by 80% of the respondents, and 20% of the respondents did not carry out any environmental management. As for the availability of clean water, the entire respondents (100%) obtained clean water from the well. With regard to environmental road construction, 60% of the respondents' environment had concrete roads, and the environment of 40% of the respondents had dirt roads. As for the availability of electricity networks, 100% of the respondents' environment had been supplied with electricity.</p>	<p>Types of Land and Business</p>	<p>In the study area, only 20% of the respondents, while the other 80% only used it as dwellings. As for commercial types, 10% of the area was for home industries, and the remaining 80% was for other types of field. Only 20% of the respondents used their land as business land, while the remaining 80% only used their land as a residential area.</p>
<p>Ownership Status</p>	<p>Sixty percent of the respondents had lived in the study area before 1990, and the rest (40%) lived there after 1990. All respondents (100%) considered that the location had an important value. With regard to ownership status, 70% of the respondents had land certificates, while the remaining 30% did not. Sixty percent of the respondents had IMBs (Permits for Building), and the rest (40%) did not.</p>	<p>Reasons for Selection and Land Allocation</p>	<p>Of all of the respondents, 90% were indigenous, and the other 10% were migrants. For reasons of location selection, 50% of the respondents chose locations because they were strategically situated, while the other 20% chose locations because they were not adjacent to the locations of similar activities. Twenty percent of the respondents did not know the reason for choosing locations, and the remaining 10% did not know the reason for choosing locations. With regard to the allocation of location selection, 90% of the respondents considered the locations to be crowd centers, and the other 10% did not.</p>
<p>Development and Type of Land</p>	<p>Of all of the respondents, 80% thought that there was an environmental development taking place. The remaining 20% thought that there had been no significant development. Ninety percent of the respondents considered that there had been a technological development, and the other 10% did</p>	<p>Licensing and Land Development</p>	<p>In business licensing, 50% of the respondents already had business licenses, and the other 50% did not. According to 10% of the respondents, the process of arranging permits was not transparent, and 90% had other reasons. The areas of land owned by respondents varied. Ten percent of the respondents had land areas of less than 100 m<sup>2</sup>. Sixty percent of the respondents had land areas of 100 m<sup>2</sup>–200 m<sup>2</sup>. Meanwhile, 30% of the respondents had land areas of more than 200 m<sup>2</sup>. As for land development, 50% of the respondents chose to do business development, and the other 50% did not have plans for the land in the future.</p>

Understanding of the Spatial Plan	Of all of the respondents, 70% did not know about the Spatial Plan of Kubu Raya Regency, and 30% knew about the spatial plan. According to 20% of the respondents, socialization had been carried out by the local government regarding the RTRW (Spatial Planning), and 80% stated that the information came from other sources. Of all of the respondents, only 20% understood the directions in the spatial plan, while the remaining 80% did not understand the directions in the spatial plan.
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Table 3: Findings Regarding Land Use in Ambawang Kuala Village.

Assessment Aspects	Findings
Population Conditions	100% of the respondents were men. Forty percent of the respondents were elementary to secondary school graduates, 30% were college graduates and had a Bachelor's degree, and the rest did not mention their level of education. With regard to profession, 20% of the respondents were temporary workers, and 60% had permanent jobs. Thirty percent of the respondents earned less than Rp1 million a month, and 60% of them felt that the income was not enough to meet their living needs. Seventy percent of the respondents earned from Rp1 million to more than Rp1 million, and only 40% of them felt that their income was more than enough to meet their living needs, some of which they could still save.
General Environmental Conditions	In general, 80% of the respondents had 1 family in one dwelling, and only 20% had more than 1 family. With regard to the status of the land owned by the respondents, 90% was self-owned, and 10% of the respondents rented other people's land. Eighty percent of the buildings owned by the respondents were permanent buildings, and 20% were semi-permanent buildings. Seventy percent of the respondents still left land for the yard, and 30% did not. With regard to building age, 70% of the respondents occupied buildings less than 15 years of age, and 30% occupied buildings more than 15 years of age. One-hundred percent of

	the respondents had made repairs on their buildings more than 1 time.
Living/Business Environment Conditions	With regard to the condition of the business environment, 20% of the respondents used their land only as housing, and 80% used their land as places of business. With regard to the type of business undertaken by the respondents, 30% of the respondents were engaged in the household industry, 20% were doing business in kiosks, and 50% were engaged in other fields. As for accessibility to environmental facilities, 60% of the respondents could reach the facility easily from their environment, and 40% had to be from the outside of the environment to reach the nearest facility. With regard to the building itself, 90% of the respondents were in an environment where the entire buildings were oriented towards the road, and 10% were in an environment where not all buildings were oriented towards the road.
Environmental Facility Conditions	With regard to environmental facilities available on a graphical basis, 60% of the respondents used MCK (bath, wash, and toilet) facilities in the form of <i>cubluk</i> , and the other 40% used latrines in rivers or ponds. As for waste management, 10% of the respondents had the environmental waste management carried out by the Department of Sanitation, 60% threw their own waste on their own land or in the ditch, and 30% had the waste management carried out by the environment. One-hundred percent of the respondents did not have any permanent rainwater construction in their environment.
Environmental Physical Conditions	With regard to environmental physical conditions, 30% of the respondents experienced flooding, and 70% rarely or never experienced flooding in their environment. Environmental management in the form of cooperation was carried out by 40% of the respondents, while the other 60% did not carry out any environmental management. As for the availability of clean water, the entire respondents (100%) obtained clean water from the well. With regard to environmental road construction, 90% of the respondents' environment had concrete roads, and 10% of the

	respondents' environment had dirt roads. With regard to availability of electricity networks, 100% of the respondents' environment had been supplied with electricity.
Ownership Status	Fifty percent of the respondents had lived in the study area since before 1990, and the other 50% started to live there after 1990. All respondents (100%) considered that the location had an important value. As for the ownership status, 90% of the respondents had land certificates, while the remaining 10% did not. Sixty percent of the respondents had IMBs (Permits for Building), and the rest (40%) did not.
Development and Type of Land	Of all of the respondents, 100% thought that there was an environmental development. Eighty percent of the respondents thought that there was a technological development, and the other 20% did not consider that any technological change occurred in their environment. With regard to the type of land before being owned by the respondents, 70% of the land was a residential area, 20% was empty land, and 10% was rice fields. Twenty percent of the respondents had lived on the land for 0–5 years, 50% for 5–10 years, and the remaining 30% for more than 15 years.
Types of Land and Business	In the study area, 80% of the respondents used their land as locations for commercial businesses, while the other 20% only used it for housing. As for commercial business alone, 63% of them were engaged in trading, and 38% were engaged in other fields. Seventy percent of the respondents used their land as residences as well as business locations, and 30% only functioned as either of the two. With regard to ownership status, 10% of the land was leased land, and 90% was private property.
Reasons for Selection and Land Allocation	Of all of the respondents, 90% were indigenous, and 10% were migrants. With regard to reasons for location selection, 80% of the respondents chose locations because they were strategically situated, while 20% of the respondents did not know the reason for location selection. With regard to allocation of location selection, 80% of the respondents

	considered the locations to be crowd centers, and the other 20% did not.
Licensing and Land Development	In business licensing, 60% of the respondents had business licenses, and the other 40% did not have any commercial business license. According to 10% of the respondents, the licensing process was costly, 20% of the respondents considered the licensing process to be complicated, and 70% had other reasons. The areas of the land owned by the respondents varied. Sixty percent of the respondents had land areas of less than 100 m <sup>2</sup> . Thirty percent of the respondents had land areas of 100 m <sup>2</sup> –200 m <sup>2</sup> . Ten percent of the respondents had land areas of more than 200 m <sup>2</sup> . With regard to land development, 70% of the respondents chose to do development, and the remaining 30% did not have a plan for the land in the future.
Understanding of the Spatial Plan	Of all of the respondents, 70% did not know about the Spatial Plan of Kubu Raya Regency, and 30% knew about the Spatial Plan. According to 20% of the respondents, socialization regarding RTRW (Spatial Planning) had been carried out by the local government, and 80% stated that the information came from other sources. Of all of the respondents, only 20% understood the directions in the spatial plan, while the remaining 80% did not.

Table 4: Findings Regarding Land Use in Jawa Tengah Village.

Assessment Aspects	Findings
Population Conditions	Ninety percent of the respondents were men, and 10% were women. One-hundred of the respondents were elementary to secondary school graduates. With regard to profession, 60% of the respondents were temporary workers, and 40% had permanent employment. One-hundred percent of the respondents earned less than Rp1 million a month. Ninety percent of the respondents considered that their income was not enough to meet their living needs, and 10% felt that their income was more than enough, some of which they could save.

General Environmental Conditions	Based on the graph, 100% of the respondents had 1 family in one dwelling with the status of the land owned by 90% of the respondents being self-owned and the status of the land owned by the remaining 10% being state-owned land. Forty percent of the respondents' owned buildings were permanent buildings, and 60% of the respondents' owned buildings were semi-permanent buildings. Eighty percent of the respondents still left land for the yard and 20% did not. With regard to building age, 80% of the respondents occupied buildings less than 15 years of age, and 20% occupied buildings more than 15 years of age. Seventy percent of the respondents had made repairs on their buildings more than 1 time, and 30% had never made any improvements on their buildings at all.
Living/Business Environment Conditions	With regard to condition of the business environment, 70% of the respondents used their land only as housing, and 30% used their land as places of business. With regard to the type of business carried out, 100% of the respondents carried out businesses in kiosks. As for accessibility to environmental facilities, 30% of the respondents could reach the facilities easily from their environment, and 70% had to be from the outside of the environment to reach the nearest facility. With regard to the building itself, 50% of the respondents were in an environment where the entire buildings were oriented towards the highway, and 50% were in an environment where not all buildings were oriented towards the road.
Environmental Facility Conditions	With regard to environmental facilities available on a graphical basis, 20% of the respondents used MCK (bath, wash, and toilet) facilities in the form of <i>cubluk</i> , and the remaining 80% used latrines in rivers or ponds. With regard to waste management, the whole respondents (100%) threw away their own garbage on their own land or in ditches. One-hundred percent of the respondents did not have any permanent construction of rainwater channels in their environment

Environmental Physical Conditions	With regard to environmental physical conditions, 100% of the respondents experienced flooding in their environment. Environmental management in the form of cooperation was carried out by 60% of the respondents, and 40% did not carry out environmental management. As for the availability of clean water, the entire respondents (100%) obtained clean water from the well. With regard to environmental road construction, 20% of the respondents' environment had concrete roads, and 80% of the respondents' environment had dirt roads. With regard to availability of electricity networks, 100% of the respondents' environment has been supplied with electricity.
Ownership Status	Fifty percent of the respondents had lived in the study area since before 1990, and the other 50% started to live there after 1990. Ninety percent of the respondents considered that the location had an important value, while 10% did not. With regard to ownership status, 80% of the respondents had land certificates, while the remaining 20% did not. Twenty percent of the respondents had IMBs (Permits for Building), and the rest (80%) did not.
Development and Type of Land	Of all of the respondents, 90% thought there were environmental and technological developments taking place, and the other 10% did not consider that environmental and technological changes had occurred. With regard to land types before being owned by the respondents, 60% of the land was residential area, 30% was vacant land, and 10% was paddy fields. Ten percent of the respondents had occupied the land for 0–5 years, 50% for 5–10 years, 10% for 10–15 years, and the remaining 30% for more than 15 years.
Types of Land and Business	Of all of the respondents, 90% thought that there were environmental and technological developments taking place, and the other 10% did not consider that technological changes had occurred. With regard to land types before being owned by the respondents, 60% of the land was residential area, 30% was vacant land, and 10% was



	paddy fields. Ten percent of the respondents had occupied the land for 0–5 years, 50% for 5–10 years, 10% for 10–15 years, and the remaining 30% for more than 15 years.
Reasons for Selection and Land Allocation	Of all of the respondents, 90% were indigenous, and 10% were migrants. With regard to reasons for location selection, 60% of the respondents chose locations because they were strategically situated, 10% chose locations because they were not adjacent to similar activities, and 10% chose locations for other reasons. For the allocation of location selection, 90% of the respondents considered the locations to be crowd centers, and the other 10% did not.
Licensing and Land Development	In business licensing, the entire respondents had commercial business licenses. With regard to constraints in licensing, 10% of the respondents considered the process as complicated, and 90% had other reasons. The areas of land owned by the respondents varied. Seventy percent of the respondents had land areas of less than 100 m <sup>2</sup> , and 30% had land areas of 100 m <sup>2</sup> –200 m <sup>2</sup> . With regard to land development, 30% of the respondents chose to do business development, 10% planned to sell their land, and the remaining 60% did not have any plan for the land in the future.
Understanding of the Spatial Plan	All respondents were not aware of the RTRW (Spatial Planning) and did not understand the Spatial Plan of Kubu Raya Regency.

Table 5: Findings Regarding Land Use in Korek Village.

Assessment Aspects	Findings
Population Conditions	One-hundred percent of the respondents were men. Seventy percent of the respondents were elementary to secondary school graduates, and 30% were college graduates and had a Bachelor's degree. With regard to profession, 40% of the respondents were temporary workers, and 60% had permanent jobs. Sixty percent of the respondents earned less than Rp1 million a month, and 40% of the respondents earned more than Rp1 million. Seventy percent of the

	respondents considered their income to be not enough to meet their living needs, and 30% felt that their income was more than enough, some of which they could save.
General Environmental Conditions	In general, 70% of the respondents had 1 family in one dwelling, and 30% had more than 1 family. The status of the land owned by the entire respondents (100%) was billionaire. Sixty percent of the respondents had permanent buildings, and 40% had semi-permanent buildings. Ninety percent of the respondents still left land for the yard, and 10% did not. With regard to building age, 20% of the respondents occupied buildings less than 15 years of age, and 80% occupied buildings more than 15 years of age. Eighty percent of the respondents had made repairs on their buildings more than 1 time, and 20% had never made any repair on their buildings.
Living/Business Environment Conditions	With regard to condition of the business environment, 20% of the respondents used their land only as housing, and 80% used their land as places of business. With regard to type of business undertaken by the respondents, 25% of the respondents were engaged in household industries, 50% were engaged in businesses in kiosks, and 25% were engaged in other fields. As for accessibility to environmental facilities, 90% of the respondents could reach the facilities easily from their environment, and 10% had to be from the outside of the environment to reach the nearest facility. With regard to the building itself, 80% of the respondents were in an environment where the whole buildings were oriented towards the road, and 20% were in an environment where not all buildings were oriented towards the road.
Environmental Facility Conditions	With regard to environmental facilities available on a graphical basis, 50% of the respondents used MCK (bath, wash, and toilet) facilities in the form of <i>cubluk</i> , and 50% used latrines in rivers or ponds. With regard to waste management, 20% of the respondents' garbage was managed by the environment, and 80% disposed of their own waste on their own land or in ditches. One-hundred percent of the respondents

	did not have any permanent construction of rainwater channels in their environment.
Environmental Physical Conditions	With regard to environmental physical conditions, 60% of the respondents experienced flooding in their environment, and 40% of the respondents rarely or never experienced flooding in their environment. Environmental management in the form of service was carried out by 90% of the respondents, and 10% did not manage the environment. As for the availability of clean water, the entire respondents (100%) obtained clean water from the well. With regard to environmental road construction, 90% of the respondents' environment had concrete roads, and 10% of the respondents' environment had dirt roads. With regard to availability of electricity networks, 100% of the respondents' environment had been supplied with electricity.
Ownership Status	Eighty percent of the respondents had lived in the study area since before 1990, and the remaining 20% started to live there after 1990. All respondents (100%) considered that the location had an important value. With regard to ownership status, 100% of the respondents had land certificates and IMBs (Permits to Establish Building).
Development and Type of Land	Of all of the respondents, 100% considered that there were environmental and technological developments taking place in their environment. With regard to type of land before being owned by the respondents, 10% of the land was residential area, and 90% was vacant land. Ten percent of the respondents had occupied the land for 0–5 years, 10% for 5–10 years, and the remaining 80% for more than 15 years.
Types of Land and Business	In the research area, 80% of the respondents used their land as locations for commercial businesses, while the other 20% only used their land as residences. With regard to the type of commercial business itself, 50% of the respondents were engaged in trading, 25% in household industries, and 25% in other fields. Eighty percent of the respondents used their land as

	residential as well as business locations. As for ownership status, the whole land was private property.
Reasons for Selection and Land Allocation	Of all of the respondents, 100% were indigenous. With regard to reasons for location selection, 50% of the respondents chose locations because they were strategically situated, 10% chose locations because they did not lie near locations of similar activities, 30% did not know the reason for choosing a location, and 10% chose locations for other reasons. With regard to allocation of location selection, 90% of the respondents considered the locations to be crowd centers, and the other 10% did not.
Licensing and Land Development	In business licensing, 88% of the respondents who owned businesses already had permits, and the other 13% did not have any business license. The areas of land owned by the respondents varied. Ten percent of the respondents had land areas of less than 100 m <sup>2</sup> . Eighty percent of the respondents had land areas of 100 m <sup>2</sup> –200 m <sup>2</sup> , and 10% had land areas of more than 200 m <sup>2</sup> . With regard to land development, 100% of the respondents chose to do business development in the future.
Understanding of the Spatial Plan	Regarding the Spatial Plan of Kubu Raya Regency, 40% of the respondents knew the RTRW (Spatial Planning), and 60% claimed that they did not know about the existing RTRW. Forty percent of the respondents knew about the RTRW from the socialization by the local government. Twenty percent of the respondents understood the directions in the Spatial Plan, and 80% did not.

An analysis of the space pattern of Sei Ambawang District was an analysis of the distribution of space allotment in the area, which included the analysis of the designation of space for protection functions and the analysis of the designation of space for cultivation functions. The analysis of the space pattern of Sei Ambawang District functions as the following:

- allocation for the community's socio-economic activities and environmental conservation activities;
- regulator of the balance and harmony of space allocation;
- a basis for the 10-year program indication; and

d. a basis for granting space utilization permits.

In the Sei Ambawang District Road corridor, settlements, trade, and services, as well as development of existing oil palm plantations have been established. Judging from the pattern of space, the following characteristics were identified:

- commercial activities were centered in the city center;
- settlement activities developed in agricultural and plantation areas; and
- the development of agropolitan areas provided a place for plantation production.

With regard to the floating area of Sei Ambawang District, in accordance with the directions above, the development concept was to utilize the land in Sei Ambawang District as certain spots, with an emphasis being placed on the area of the east cross-road corridor of Sei Ambawang District. Based on the existing conditions in Sei Ambawang District, the use of land had yet to be optimal. The land was designated to be used as productive cultivation areas, such as rubber plantations and oil palm plantations in several villages and areas for trading/services and government activities or other social activities.

Economic activities are regularly conducted by all residents on a day-to-day basis. Therefore, in order to provide economic services, it is necessary to analyze economic facilities such as markets, banks, rental services, cooperatives, among others. In Sungai Ambawang District, the economic facilities such as shops and stalls/kiosks in 2015 were arguably very adequate. Shop service and stalls (*kios*), restaurants with the scope of housing environment services. In 2025, there will be additions to the existing market facilities, and it is expected that the facilities added will be more evenly distributed, so that all residents can be served. Commercial areas were concentrated along the collector road from Ambawang River (Trans-Kalimantan Road) to the capital city of Pontianak. As a primary function facility (service scale at the district level), commercial areas were arranged on the sides of the collector road connecting traffic between districts.

The presence of markets, shops/kiosks, and restaurants on the sides of new arterial roads will be able to trigger regional growth. This is due to the fact that market, restaurants, and shops/kiosks serve as centers of activity. It will be able to trigger the growth of the area from the undeveloped land to the built land of the surrounding land. Agglomeration or clustering of commercial functions (markets, shops) in close proximity will become the main attraction of a region. Economic means do not always stand alone and are

separate from other building facilities. The provision of such facilities is based on not only the size of the population that will be served, but also the approach of design of spatial units or existing environmental groups. This can be related to the formation of the building/block groups according to the context of the environment. The facilities will be provided for the villages in need. The extent to which economic facilities are needed for the following year is outlined in table 6.

Table 6: Economic Facilities Needs in Ambawang District for the Period 2015–2025.

Year	Population (life)	type of facility	Market	Shops/Kios/Stalls	Hospitals	Hotel/Lodging
		facility std	30000	250	250	30000
2015	24176	Amount	4	202	12	1
		2015				
2016	24532	K	1	97	97	1
		T	0	0	85	0
2017	24974	K	1	98	98	1
2018	25481	T	0	0	1	0
		K	1	100	100	1
2019	26040	T	0	0	2	0
		K	1	101	101	1
2020	26642	T	0	0	1	0
		K	1	102	102	1
2021	27283	T	0	0	1	0
		K	1	103	103	1
2022	27959	T	0	0	1	0
		K	1	104	104	1
2023	28668	T	0	0	1	0
		K	1	105	105	1
2024	29411	T	0	0	1	0
		K	1	106	106	1
2025		T	0	0	1	0
		K	2	107	107	1

Source: Observation Results, 2017, and Analysis Results, 2018

According to the table above, we can see that in 2015, there was only 1 market, and there is no addition each year. However, there is a need for two additional markets for 2025. Meanwhile, there were 202 stores / kiosks/grocery in 2015, and the number is not projected to increase for 2025. As for lodging/hotel facilities, as is the case with market, there is no addition every year, but there is a need for two additional lodging/hotel facilities. In 2015, there were 12 restaurants, and the number will increase with an addition of 95 restaurants by 2025. In Ambawang District, based on the 2015 data, there was only 1 bank, and no addition is projected for 2025. In this analysis, there is no annual addition, but in the coming years, with the increase in population size, the bank will be easily accessible by the people of Ambawang District in 2025.

#### 4 CONCLUSIONS

Urban Cultivation Areas, namely urban cultivation areas that can be developed in Sei Ambawang District in accordance with the policy direction of Kubu Raya Regency development, are areas for residential activities, which, in this case, include housing and business premises (trade, offices, etc.) at the local/district service scale. They are distributed in every village in Sei Ambawang District with a pattern of development following the transportation route and the centers of economic activities, district government services, industrial areas, and trading and services that support the economic activities.

Plantation & Agriculture Cultivation Areas, including the plantation & agricultural cultivation areas which can be developed in Sei Ambawang District in accordance with the policy direction for Kubu Raya Regency development, are areas for annual plantation activities for oil palm, rubber, and several other commodities.

The development of suburban settlements is reflected in the appearance of the housing environment according to the typological characteristics of the development of settlement groups, both regular and irregular, so that a strategy is needed in developing a road structure that connects the parcels to the main road access, namely the Trans-Kalimantan corridor.

Based on the development potentials and the problems mentioned above, it is necessary to plan the development of the region by preparing a Sei Subdistrict development master plan. Ambawang is an area that is on the crossroads and the urban areas development. The planning area covers the

administrative district area, namely Sei Ambawang District.

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