

## Characteristics of Kampung Jawa Settlement Typology in Wanasari Subvillage, Denpasar, Bali

### Karakteristik Tipologi Permukiman Kampung Jawa di Dusun Wanasari Denpasar, Bali

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**Abstract :** *A slum settlement constitutes a residential environmental condition with a quality far below the occupancy worthiness standard. Slum neighborhoods are characterized by high building density, low environmental quality, poor infrastructure, and social problems that occur. One area in Denpasar City that belongs to slum settlement is Wanasari subvillage, Dauh Puri Kaja, North Denpasar. Kampung Jawa settlement area is divided into 9 RT (Neighborhood Associations). This area is not fully qualified for a slum, which can be divided into typologies of mild slum, moderate slum, and heavy slum levels. In general, each RT's physical conditions have various characteristics. This study was at least to analyze the characteristics of each typology group of slums. The research method used was mixed methods, in which the research stages were started by identifying the characteristics of the slum settlements in each RT area having been categorized according to the existing slum levels. The process of classifying these categories was carried out by observing and identifying slum settlements by looking at the physical aspects of the environment, the socio-economic conditions of the community, environmental facilities and infrastructure, and the environmental hazard conditions. The results of the study obtained indicate that the basic factors influencing the characteristics of Kampung Jawa settlement are the level of education, the type of occupation, the level of the economy, and the locations of the RT. The lower the factors that are owned, the lower the quality of the physical environment, infrastructure, and the level of hazard formed in the area of Kampung Jawa settlement. Keywords: slum settlement, characteristic identification, Kampung Jawa.*

**Keywords:** slum settlement, characteristics, typology, Kampung Jawa

**abstract** Permukiman kumuh merupakan kondisi lingkungan hunian yang memiliki kualitas jauh dibawah standar layak huni. Lingkungan permukiman kumuh ditandai dengan kepadatan bangunan yang tinggi, kualitas lingkungan yang rendah, infrastruktur yang tidak baik, serta permasalahan sosial yang terjadi di dalamnya. Salah satu kawasan di Kota Denpasar yang memiliki permukiman kumuh berada di Dusun Wanasari, Dauh Puri Kaja, Denpasar Utara. Kawasan permukiman Kampung Jawa terbagi atas 9 RT. Kawasan ini tidak sepenuhnya memiliki kualifikasi kumuh, dapat dibagi menjadi tipologi dengan tingkat kekumuhan ringan, kumuh sedang, dan kumuh berat. Secara umum, kondisi fisik masing – masing RT memiliki karakteristik yang beragam. Tujuan penelitian ini adalah untuk menganalisis karakteristik masing-masing kelompok tipologi kekumuhan tersebut. Metode penelitian yang digunakan metode campuran (mix methods), tahapan penelitian dimulai dengan mengidentifikasi karakteristik permukiman kumuh di masing – masing wilayah RT yang telah dikategorikan sesuai dengan tingkat kekumuhan yang ada. Proses mengelompokkan kategori ini dengan cara mengobservasi dan mengidentifikasi permukiman kumuh dengan melihat aspek fisik lingkungan, keadaan sosial – ekonomi

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masyarakatnya, sarana dan prasarana lingkungan, serta kondisi bahaya lingkungan tersebut. Hasil penelitian yang diperoleh menunjukkan bahwa faktor dasar yang mempengaruhi karakteristik permukiman di Kampung Jawa ini adalah tingkat pendidikan, jenis pekerjaan, dan tingkat perekonomian, dan letak lokasi RT. Semakin rendah faktor yang dimiliki semakin rendah pula kualitas lingkungan fisik, sarana prasarana, dan tingkat bahaya yang terbentuk di wilayah permukiman Kampung Jawa.

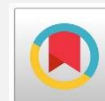
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## Introduction

According to data from the Department of Housing, Settlement and Land in Denpasar City, there are 82.6 hectares of slum areas., and they were spread over four sub-districts of Denpasar City, 9 areas in each East and west Denpasar, South Denpasar with 8 areas, and the most slum areas are founded in The North Denpasar: 10 areas. This slum area is inhabited by 3500 families (KK) spread over these four sub-districts (Disperkimtan, 2007).

Slums are residential environmental conditions that have a quality far below the livable standard (Alit, 2005). The slum settlement environment can be identified through an assessment of the environment which is characterized by high building density, low environmental quality, poor infrastructure, and social problems that occur in it (Al Betawi, 2013).

One of the areas in Denpasar City that has slums is in Wanasari Sub village, Dauh Puri Kaja, North Denpasar. This area is better known as Kampung Jawa because the majority of the population is immigrants who came from outside the island of Bali and most of them were Muslim (Asviani et al., 2019). Kampung Jawa itself is one of the slum settlements that have been identified by the Denpasar City government (Wadhanti, 2014).

The settlement area of Kampung Jawa is divided into 9 *Rukun Tetangga* (RT). This area does not fully qualify as slums, it can be divided into typologies with light, moderate, and heavy slums. In general, the physical conditions of each RT have various characteristics.

The basic characteristics that can be seen from the real conditions in the Kampung Jawa settlements with the category of light slums are in RT 2, RT 4, RT 8, and RT 9. These residential areas are more dominant as residential areas in general with a high level of building density, without distance between buildings, and can only be passed by two-wheeled vehicles (Observation, 2020).

Second, settlements with moderate slum categories in RT 1 and RT 3 have the characteristics of settlements located on the river banks (Tukad Badung) and close to the main road as a center for socio-economic activities, and there is an animal livestock industry (Observation, 2020).

Third, settlements with heavy slum categories are located in RT 6 and RT 7 with high population and building density. In addition, the lowest quality of settlement is in RT 7 with the majority of semi-permanent building materials.

In an effort to overcome slum settlements in Denpasar City, the local

government has made several efforts to overcome these problems. Several activities, such as preparing the regional drawings to organize slum settlements, house renovation activities, also have been carried out by the Denpasar City government (Improving the Quality of Slum Housing and Slum Settlements [JDIH BPK RI], 2016) . This effort was carried out with the aim of organizing slum settlements in Denpasar City. However, the real conditions that occur today are slums that continue to grow along with the population increase.

Problems that has been described was used ton formulating research objectives. This research was conducted in order to provide the right direction related to improving the Kampung Jawa settlement environment quality. The initial step of this research was to identify the typology of the characteristics of slum settlements in each neighbourhood (RT) area which had been categorized according to the existing slum level (Setiadi, 2014) .

Steps are taken by observing and identifying slum settlements by observing at the environmnet physical aspects, the community's socio-economic conditions , environmental facilities and infrastructure, as well as the environmental hazards conditions. These steps are important to take to look at the conditions and characteristics of each settlement so that it can conclude recommendations or appropriate and precise directions in managing for the better Kampung Jawa area.

## Method

This research uses mixed research methods in its implementation using quantitative data which is then described using qualitatively. In the implementation of the research, the first step is to conduct a grand tour to the field to determine the study area and find phenomenas that occur in the field.

In the process of identifying the characteristics of slum settlements in Kampung Jawa Settlement, this is done by collecting primary data through observation and distributing questionnaires.

At the observation stage, it is conducted by looking at the real conditions of the observed study area, and collecting documentation in the form of photos as data to provide a visual description of the area condition.

While the questionnaire was made by making a list of questions related to the research focus. The questionnaire made refers to the literature review used and will be distributed to respondents who occupied in Kampung Jawa. The questionnaire was distributed in *closed-ended form* , with answers provided.

Descriptive analysis is used to translate the results of the questionnaire obtained and to describe the facts. This analysis is carried out to interpret or describe the data systematically on the characteristics of slum settlements .

The population who became respondents in this study were people who occupied in Javanese Villages. The selection of respondents using proportional random sampling technique. The sample used is based on each family (KK) who lives in Kampung Jawa. The distribution areas of the sample are distributed in each RT with the categories of light slums RT 2, RT 4, RT 8, RT 9, medium slums RT 1 and RT 3, and heavy slums RT 6 and RT 7 (Observation, 2020).

The total population in Kampung Jawa is 10,316 peoples and it is distributed into 2,840 families. To determine the number of samples to be used, the formula with the following calculations is used;

$$n = \frac{N}{Nd^2 + 1}$$

n : number of samples  
N : total population (KK)  
d : accuracy degree

The 10% accuracy degree is used is 10%, this will make sampling with a 90% confidence level. With this formula, the sample calculation used is as follows;

$$n = \frac{2.840}{2.840 \times (0.1)^2 + 1}$$

n = 96,60 rounded up to 100 samples

Then the process of selecting respondents according to the number of samples will be distributed proportionally to each RT (table 1).

Table 1. Questionnaire Distribution Sample

RT	Number of KK (family)	Number of Samples
RT 1	455 KK	16
RT 2	383 KK	14
RT 3	159 KK	5
RT 4	230 KK	8
RT 5	294 KK	10
RT 6	299 KK	11
RT 7	273 KK	10
RT 8	562 KK	20
RT 9	185 KK	6

Source: Population Data of Dauh Puri Kaja, Denpasar 2018

In determining the sample distribution of the questionnaires, the respondents used were chosen randomly in each RT as a representation or representative of the community in the Kampung Jawa Settlement.

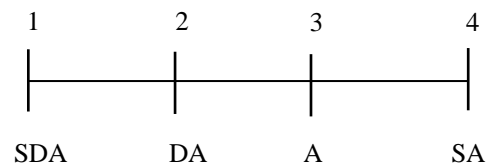
The questionnaire technique used is a *closed-ended questionnaire*, with the answers provided. So that respondents just choose the answer that is in accordance with what they feel. Written questions and their answers were used by researchers to respondents as research samples. The contents of the questionnaire are variables in which each answer will be given a measurable value to facilitate data processing later. The distribution of

questionnaires aims to determine the condition of the location, the condition of the buildings, facilities and infrastructure, the population, and the socio-economic conditions of the community.

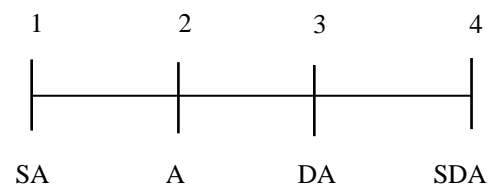
The questions that were distributed to the respondents had alternative answers as follows;

1. Strongly Agree (SA), the answers given by the respondents strongly support the statements given.
2. Agree (A), the answer given by the respondent supports the statement given.
3. Disagree (DA), the answer given by rejecting the given statement.
4. Strongly Disagree (SDA), the answers given by respondents strongly disagree with the statements given.

By assigning a score using a Likert scale on each alternative answer for the positive statement given



Meanwhile, for answers with negative statements, the answer scores will be as follows;



Administratively, the research located in Wanasari Sub village, Dauh Puri Kaja District, North Denpasar. The settlement area of Kampung Jawa has a fairly high population density of 10,316 people. The settlement area of Kampung Jawa, Dusun Wanasari itself is divided into 9 RTs (figure 1).

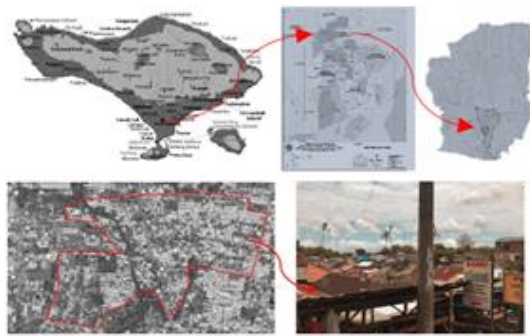


Figure 1. Location Map of Kampung Jawa (source: Denpasar City Official Site, 2020)

In the discussion of the typological characteristics of Kampung Jawa settlements, it will refer to five aspects related to the conditions of the settlement environment. These five aspects explain the characteristics of each settlement with light, medium, and heavy slum levels. The determination of the slum area uses a weighting system on each of the predetermined criteria.

Table 2. Slum Level Assessment weighting

No	Variable	Indicator	Area Criteria	Weight
1.	Physical Environment	Building Materials	Permanent	4
			Semi Permanent	3
			temporary	2
		Building Density Level	Currently	4
			Tall	3
			Very high	2
		Distance between Buildings	Not solid	4
			Congested	3
			Very solid	2
2.	Facilities and infrastructure	water network	>75%	4
			40 – 75%	3
			5 – 4-%	2
		Garbage system availability	Not much, managed	4
			Quite modest, managed	3
			Found naby , unmanaged	2
		Accessibility conditions	Fair	4
			Bad	3
			Very bad	2
		Open space	Available	4
			Not available	2
3.	Social	Length of stay	More than 20 Years	4
			Less than 20 Years	2
		Level of education	Senior high school	4
			Junior high school	3
			Elementary	2

The five aspects used are derived from the Slum Area Criteria issued by the Ministry of Public Works and Public Housing, which have been adapted to the conditions of the Javanese Village Settlement, can be seen in Table 2.

In this analysis, the condition of the slum area is divided into 3 classes, namely; K1 = Light Slum, K2 = Medium Slum, and K3 = Heavy Slum. Calculation of the level of slums can use the following formula;

$$I = \frac{\sum B}{\sum N}$$

I = Slum level  
 B = Criteria weight value  
 N = assesment components

Based on the formula, the weighting of the slums level can be divided as follows;

- (K1) Light : 1-2  
 (K2) Moderate : 2-3  
 (K3) Heavy : 3-4



		Society participation	Good	4
			Moderate	3
			Bad	2
4.	Economy	Profession	civil servant	4
			General employees	3
			Workers/Traders	2
	Income		Above regional wage (UMRO	4
			Regional wage (UMR)	3
			Below the redional wages(UMR)	2
5.	Danger (Hazard)	Drainage Condition	Fair	4
			Bad	3
			Very bad	2
	Environmental conditions that cause danger		Do not exist	4
			Exist	2

(Source: Perkim.id, 2020)

## Results and Discussion

In this study, descriptive analysis techniques were used in translating the questionnaires distributed to 100 respondents who were divided into people in low, medium, and heavy slums in Kampung Jawa. This discussion on the characteristics of settlements in Kampung Jawa uses five aspects derived from the Slum Criterias issued by the Ministry of Public Works and Public Housing, which have been adapted to the conditions of the Kampung Jawa Settlement.

### Characteristics of Javanese Village Settlement Typology in Wanasari Subvillage, Denpasar

#### Light Slums

Kampung Jawa settlements with light slum conditions are located in RT 2, RT 4, RT 8, and RT 9. The characteristics of these light slums can be identified through these aspects;

##### 1. Physical Aspects of the Environment

The physical aspect of the environment in the Javanese village settlement area with lighth slum conditions has the best condition among other areas. The condition of the buildings in this environment has a permanent building with very good material quality. However, the high density of buildings, and the absence of distance between buildings,

causes this residential area to become very dense.

##### 2. Aspects of Facilities and Infrastructure

The facilities and infrastructure in settlements with the quality of light slums have the best conditions among other areas. Facilities and infrastructure in good condition can be seen from the availability of clean water, solid waste, accessibility, and open space. Most of the use of the water system in this area has been channeled by the water network from local water company (PDAM) and drilled wells. Based on the questionnaire distributed by 48 respondents, 80% said they used PDAM water and 20% used private bore wells. This is because when using PDAM water, the water flow is often cut off in turns.

From the waste aspect, this area tends to be clean and each house has a trash can. Garbage will be transported by cleaners using trucks at certain hours. Meanwhile, from the aspect of accessibility, the road conditions in this settlement tend to be narrow with a size of less than 2 meters and can only be passed by two-wheeled vehicles. With narrow road conditions, but accessibility is easy to reach with road conditions that have been paved using paving blocks (figure 2). The open space found in this light slum area is more

spacious than settlements with medium and heavy categories. Open space is used as a place for activities and interactions between residents.



Figure 2. Residential conditions with low slum levels (source: researcher observations, 2020)

Meanwhile, poor facilities and infrastructure are found in closed environmental drainage conditions. In general, these drainage conditions do not function properly and cause unpleasant odors due to poor drainage.

### 3. Social Aspect

Based on the social aspects reviewed in this light slum settlement, it is divided into RT 2, RT 4, RT 8, the majority of the population is native to Kampung Jawa who has lived for decades since the establishment of Kampung Jawa settlement. Meanwhile, RT 9 is a new village, so that more immigrants stay for less than 10 years.

Factors that are considered by the people of Kampung Jawa residents to live in these settlements are the migration factor that has occurred since decades ago and close kinship with similar cultural and religious backgrounds.

The majority of the population in these light slums have a fairly good education. From the questionnaires distributed they completed education up to junior high school (15%), high school (30%) and undergraduate (5%)

Activities that increase kinship in this area include monthly mutual cooperation, Family Welfare Guidance Group (PKK) gatherings, and the formation of recitation groups.

### 4. Economic Aspect

In the economic aspect, this region has the best economic level. The livelihoods of the residents are diverse with an average income of around 3,000,000 IDR – 4,000,000 IDR per month. Based on the questionnaire distributed, the work of the community in this area varies from government employees (8%), private employees (20%), and self-employed (10%).

### 5. Aspect of Danger Level

Kampung Jawa settlements are mostly located on the banks of the Tukad Badung river and have poor drainage infrastructure. So this area is a flood prone area. These light slums have better conditions for dealing with flooding, flooding that occurs if the intensity of the rain that comes is heavy enough to leave puddles as high as 20-30 cm. Floods that occur due to the intensity of heavy rains and poor drainage capacity cause the inundation to last less than a day .

### Medium Slums

Kampung Jawa settlements with moderate slum levels are located in RT 1 and RT 3. The characteristics of these settlements can be identified based on;

#### 1. Physical Aspects of the Environment

The physical condition of the buildings in an environment with moderate slums has the characteristics of a permanent building with a variety of roofing materials. The use of roofing materials does not entirely use permanent materials, even though the construction of the building is permanent. The roofing materials used consist of roof tiles, asbestos, zinc, and metal roof tiles. In general, the physical environment in this area tends to be denser, with buildings sticking together (figure 3).



Figure 3. Residential Conditions with moderate slum levels (source: researcher observations, 2020)

In addition, RT 3 has a strategic location because its near the main road intersection, so there are several houses that have goat farming businesses for sale. The cattle pens are right in front of their house which gives off an unpleasant smell. The cattle pens are made of bamboo, and are right on the main road. This not only creates a bad visual impression but can affect the health of the occupants and the quality standards of a good healthy home.

### 2. Aspects of Facilities and Infrastructure

The condition of facilities and infrastructure at the medium slum level is similar to the conditions in light slums. The condition of the infrastructure is seen from the water network system, solid waste, drainage and accessibility in RT 1 and RT 3. For the water system network in this area based on the questionnaire 90% uses water network from local water company (PDAM) and 10% uses private bore wells. The waste system in this area, from the results of the questionnaire, stated that 77% had personal trash bins which were then taken to the temporary garbage bin (TPS) and transported by garbage trucks. However, the real conditions in the field can be seen that some households still throw their garbage on the Tukad Badung river banks.

Accessibility conditions in this area tend to be very narrow with a road width of only 1.25 – 1.50 m, but the pavement is quite good. However, it is still a hazard in the event of a fire or other hazard that can complicate road access due to the lack of

open areas. Existing drainage is environmental drainage with direct discharge to riverbanks. Generally, drainage conditions do not function properly, because at some points we can see piles of garbage covering the drainage.

### 3. Social Aspect

The social aspect of the medium slum area has the majority of the population who have lived for a long time (more than 20 years) in Kampung Jawa. The social aspect of the community in this area is no different from light slum settlements. Social activities that occur are carried out with mutual cooperation, social gathering, and recitation groups. This Kampung Jawa settlement has a place of worship in the form of the Baiturrahman Mosque in Denpasar which is the center for social activities and worship of its citizens. The level of education of its citizens varies. Starting from elementary school (27%) junior high (7%), high school (5%) to undergraduate/equivalent (1%).

### 4. Economic Aspect

For the economic aspect of this settlement, the community's occupations are dominated by traders (30%), government employees (2%). While the average income earned 2,500,000 – Rp. 5,000,000 IDR per month. The income earned is quite high because some of the people have business traders who are busy with visitors, and goat farming businesses.

### 5. Aspect of Danger Level

The level of danger that occurs in this environment is in the flood problem. The location of the RT 1 and RT 3 areas which are adjacent to the Tukad Badung river bank makes this area often flooded. The condition of the Tukad Badung river itself has experienced a fairly high siltation, resulting in flooding of shipments originating from the upper reaches of the river. This affects the level of flood hazard that occurs in this settlement, coupled



with drainage conditions that are not functioning properly.

### Heavy Slums

Heavy slum settlements are located in RT 6 and RT 7. The characteristics of these settlements can be identified based on;

#### 1. Physical Aspect

The condition of the physical aspect in these heavy slums has the lowest qualification (quality) among other settlements. The RT 6 area still has a good physical condition of the building with permanent materials. However, the level of slums is quite high due to the density of the building and poor hygiene conditions.

While in RT 7 the condition of the houses has the characteristics of semi-permanent buildings. In general, building materials use a mixture of brick walls and wooden or zinc boards as wall and roof coverings (figure 4). From this real condition, it can be seen that the most severe level of slums is in RT 6 and RT 7.



Figure 4. Residential Conditions with severe slum levels (source: researcher observations, 2020)

#### 2. Aspects of Facilities and Infrastructure

The condition of the facilities and infrastructure found in these settlements with heavy slum levels is generally not good. The water network system used is PDAM which has been evenly distributed in the settlements but is not in good condition, water that runs only at certain hours. People in this area still use the Tukad Badung riverbank as a toilet facility. Even though each house has a toilet facility, residents often wash clothes in the river.

There is very little waste in this area, people who use their own garbage bin facilities are then disposed of to the TPS. Very little of the results of the questionnaire are only 5% stating this, the rest of the people still throw their garbage on the riverbanks or burn their garbage on vacant land because it is considered more practical.

Road accessibility conditions in RT 6 are in better condition than in RT 7. The roads in RT 6 have been paved and are in good condition. While in RT 7, the road conditions are still using soil and gravel, so that when it rains it will cause puddles and muddy.

The environmental drainage is the same as in other residential conditions. The areas of RT 6 and RT 7 are close to the riverbank so that drainage channels are channeled into the river. Drainage conditions are not fully functioning properly, because at some points it can be seen that the drainage is piled up with goods and garbage.

#### 3. Social Aspect

The social condition of the people seen from the level of education has the lowest level of education among light and medium slums. From the questionnaires distributed, 51% of the people stated that their last education level was at Elementary/equivalent.

The highest level of urbanization of the population is in this heavy slum area, 64% claiming to be immigrants who come from outside the island of Bali. Those who live here work as factory workers (12%), street vendors (20%), and scavengers (11%). So the factor that causes the large number of immigrants in this area is due to affordable rental prices because most of the buildings are semi-permanent, and are located in the city center, making it easier for them to reach the intended area.

From the kinship level as well as settlements at the light and medium slum

levels, they have mutual cooperation (*gotong royong*) activities, neighborhood social gatherings, to recitation groups that are routinely carried out by the local community.

#### 4. Economic Aspect

The economic conditions of these heavy slum communities are the lowest compared to other settlements. From the questionnaire distributed, the average income of the community is far from the UMR in Denpasar City (2,493,523 IDR). Their monthly income is around 1.000.000 IDR– 1,850,000. IDR The work they do is mostly as laborers, scavengers, street vendors, motorcycle taxi drivers, construction workers, sweepers, and factory employees.

#### 5. Aspect of Danger Level

In this heavy slum settlement, the main danger that occurs is flooding due to overflowing water along the Tukad Badung river. The Tukad Badung riverbank is located between medium and heavy slum neighborhoods, so they have the same problem with overflowing water from the Tukad Badung river when it rains heavily.

Generally, this flood condition occurs in the rainy season every year. In addition, based on the questionnaire obtained, 56% stated that they were afraid of the danger of fire which could occur at any time, due to the narrowness of the land and the density of semi-permanent buildings that could cause fires.

Comparison of the characteristics of the Javanese Village Settlement Typology

The comparison of typological characteristics in Kampung Jawa settlements can be seen in table 3. There is almost no difference in the characteristics of the indicators for the low, medium and high slum areas. The difference occurs in the aspect of the availability of waste facilities and infrastructure in Kampung Jawa. Like most other slum areas in Indonesia, the lack of income associated with a low level of education (Putra et al., 2007) will also have an impact on the ability of individuals to obtain decent housing (Setianingtias et al., 2019) .

Table. 3 The Typological Characteristics of Kampung Jawa Settlement Comparison

Variable	Indicator	Light Slum	Moderate Slum	Heavy Slum
Physical Environment	Building Materials	Permanent	Permanent	Semi Permanent
	Building Density	Tall	Tall	Very high
	Distance between Buildings	Congested	Congested	Very solid
Facilities and infrastructure	water network	80% PDAM water 20% private borehole	90% PDAM water 10% private borehole	PDAM, Public WC, Tukad Badung river
	Garbage system	There is a garbage network system.	There is a garbage network system.	They don't have a good waste network system, they still throw garbage in the Tukad Badung river.
	Accessibility conditions	The road uses <i>paving blocks</i> with a road width of 2 meters.	Road width 1.25 – 1.50 m.	Footpath in poor condition. Road width 1 – 1.5 m.

	Indicator	Light Slum	Moderate Slum	Heavy Slum
	Open space availability	Available	Not available	Not available
	Length of stay	> 20 Years	> 20 Years	< 10 years (rented)
Social	Level of education	Junior high school (15%), senior high school (30%) and undergraduate (5%)	Elementary school (27%) Junior high school (7%), high school (5%) to undergraduate/ equivalent (1%).	Elementary School (51%)
	Society participation	Monthly social gathering, recitation, mutual cooperation activities.	Monthly social gathering, recitation, mutual cooperation activities.	Monthly social gathering, recitation, mutual cooperation activities.
	Profession	Government employees (8%), Private employee (20%), Self-employed (10%)	Merchants (30%), Government employees (2%)	Factory workers (12%), Street vendors (20%), Scavengers (11%).
	Income	Above UMR (3 million – 4 million rupiah per month)	Above UMR (3 million – 5 million rupiah per month)	Under UMR (1 million – 1.8 million rupiah per month)
Economy	Drainage Condition	Poor drainage infrastructure.	Drainage is not functioning properly.	Minimal drainage.
Danger (Hazard)	Environmental conditions (hazard)	Flooding due to heavy rain intensity.	Floods are caused by heavy rain and overflowing water on the banks of Tukad Badung.	Floods due to overflowing of the Tukad Badung river; and fire hazards due to the use of semi-permanent materials and building density.

Source: Researcher's analysis, 2020

## Conclusion

The identification carried out in the settlements of Kampung Jawa has its own characteristics. After going through the identification process through the five aspects used, it was found some characteristics and problems that make up the settlements of Kampung Jawa. The characteristics that underlie the formation of the typology of light slums, medium slums, and heavy slums are divided into physical and non-physical conditions. The physical conditions that create the

character of this settlement come from the condition of the building materials used, the level of building density, accessibility conditions, the availability of clean water, waste networks, and green open spaces. Then these physical factors are also supported by the non-physical conditions of the community, which include economic level, education level, community occupation, length of stay status, participation and socialization carried out by the Kampung Jawa Settlement community.

In settlements with light slum levels, the characteristics of the settlements are influenced by the high economic level of the population with an average income above the UMR Denpasar City (Rp. 3,000,000 - Rp. 4,000,000 per month), the work of the community as government employees, employees, private sector, to self-employed, the length of stay is more than 20 years, the education level of the community is equivalent to SMA-S1. So that the quality of this residential environment is very good and livable, due to the economic capacity and education level of its citizens.

Settlements with moderate slum level characteristics are formed on the basis of community conditions which are similar to light slum settlements. As is the case in a high level of economy (2,500,000 - 5,000,000 IDR per month). The income earned is quite high because some of the people own a goat farming business. The education level of the population varies with the highest levels being in Senior high school (SMA) and undergraduate (S1). However, there are several aspects that give lower conditions to this settlement, from the environmental aspect, the settlement is integrated with livestock cages as an effort by the local community. In the context of healthy settlements this is not a good thing because it involves the health and comfort of individuals. In addition, there are problems in the RT of slum settlements located along the Tukad Badung riverbanks which almost every high intensity rain occurred has a flood impact on this residential environment.

In heavy slums, this area has a tendency for high levels of slums to have an effect on worsening conditions. Compared to other slum settlements, this area has the lowest level of economy with the average income of the people below the minimum wage for Denpasar City (1,000,000 - 1,850,000 IDR/month), the people's occupations as

laborers, scavengers, street vendors, carpenters, motorcycle taxis, construction workers, sweepers, to factory employees, and the education level of the population is equivalent to elementary school. In addition, the high flow of urbanization that occurs, as well as the available infrastructure is in poor condition, the building materials used are not permanent, and the problem of flood hazard that surrounds this settlement.

So that the basic factors that influence the characteristics of settlements in Kampung Jawa are the level of education, employment, and the level of the economy of the community. The lower the factor, the lower the quality of the physical environment, infrastructure, and the level of danger formed in the settlement area of Kampung Jawa.

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### **References**

- Al Betawi, Y. (2013). *Housing & quality of life implications of the three qualities of housing in Amman, Jordan* [Ssertation, Cardiff University].  
<https://orca.cardiff.ac.uk/47620/>
- Alit, IK (2005). Community Empowerment in Improving the Environmental Quality of Slums in Bali Province. *Natah Journal*, 3 (1), 34-43.
- Asviani, A., Atmadja, NB, & Purnawati, esak MO (2019). Wanasari Islamic Hamlet in Dauh Puri Kaja Village, Denpasar, Bali (Historical Background, Dynamics, and Its Potential as a Source of History Learning in



- High School). *Widya Winayata: Journal of Historical Education* , 7 (1), 1–11.  
<https://doi.org/10.23887/jjps.v7i1.14733>
- Disperkimtan. (2007). *Slum area in Denpasar* . The Department of Housing and Residential Areas of the Denpasar City Government.  
<https://perkim.denpasarkota.go.id/article/read/346>
- Quality Improvement of Slum Housing and Slum Settlements [JDIH BPK RI], 02/PRT/M/2016 Permen PUPR (2016).  
<https://peraturan.bpk.go.id/Home/Details/104644/permen-pupr-no-02prtm2016-tahun-2016>
- Perkim.id. (2020, October 22). Criteria, Indicators, and Classification of Slum Category Determination. *perkim.id Housing & Residential Areas* .  
<https://perkim.id/kawasan-kumuh/kriteria-indikator-dan-classification-penentuan-categories-kumuh/>
- Putra, IDGAD, Aag, Yana, son AG, Gde, AAG Yana, A, son Agung, Gde, Yana, & gung Diasana Putra. (2007). Fulfillment of housing is one of the efforts to reduce poverty | natah journal. *Natah Journal*, 5 (2), 103–108.
- Setiadi, A. (2014). Typology and Pattern of Slum Settlement Handling in Bontang City. *TATALOKA* , 16 (4), 220–233.  
<https://doi.org/10.14710/tataloka.16.4.220-233>
- Setianingtias, R., Baiquni, M., & Kurniawan, A. (2019). Modeling indicators of sustainable development goals in Indonesia. *Journal of Economics and Development* , 27 (2), 61–74.  
<https://doi.org/10.14203/JEP.27.2.2019.61-74>
- Wadanti, A. (2014). Characteristics of Slum Settlement Sites in Denpasar City. *SPACE: Journal of the Built Environment (SPACE: Journal of the Built Environment)* , 2 (1).  
<https://doi.org/10.24843/JRS.2015.v02.i01.p04>

### Authors Contribution

**K. Riana Rahma Kusumawati** contributed to conceptualization on, data collection and analysis , project administration as well as drafting articles , editing and visualizing data .  
**Widiastuti** contributed to formal analysis , investigating, supervising as well as drafting articles , editing , visualizing data and writing-review  
**Ni Ketut Agusintadewi** contributed to the methodology, drafting articles , and visualizing data as well as supervizing.