

Land Consolidation in Rural Area for Increasing Environmental Quality

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Key words: Environmental quality, Jelegong Village, Land consolidation, Land distribution, Land management

SUMMARY

Land consolidation is an activity of land restructuring and reallocation. Land consolidation will create the more controlled environment and improve the community. It is also one of the equitable patterns for land management because local residents are invited to determine land planning and development in their region, in this case, the location took place in Jelegong Village. The objective of land consolidation in Jelegong Village is to increase environmental quality. Jelegong Village is one of the village in Rancaekek District that has been affected by industrial waste. Industrial waste makes natural resources damaged, especially water condition. It is also aggravated by its street condition. The street is very narrow, even two persons can't walk side by side. Through land consolidation, some problems in Jelegong Village will be resolved. The method that is used in this research is a self contribution of land for development. The output will be a model of land consolidation that will improve the environmental quality.

SUMMARY

Konsolidasi lahan merupakan aktivitas restrukturisasi dan realokasi lahan. Konsolidasi lahan akan membuat lingkungan yang lebih teratur dan mengembangkan masyarakat. Konsolidasi lahan juga merupakan pola yang sama untuk manajemen lahan karena penduduk lokal diundang untuk menentukan perencanaan dan pengembangan lahan di wilayah mereka sendiri, dalam hal ini di Desa Jelegong. Tujuan konsolidasi lahan di Desa Jelegong adalah untuk meningkatkan kualitas lingkungan. Desa Jelegong merupakan salah satu desa di Kecamatan Rancaekek yang dipengaruhi oleh limbah industri. Limbah industri membuat sumber daya alam rusak, terutama kondisi air. Hal ini juga dipicu oleh kondisi jalan. Jalannya sangat sempit, bahkan dua orang tidak dapat jalan bersebelahan. Melalui konsolidasi lahan, beberapa permasalahan di Desa Jelegong dapat diselesaikan. Metode yang digunakan dalam penelitian ini adalah sumbangan tanah untuk pengembangan. Luarannya berupa model dari konsolidasi lahan untuk meningkatkan kualitas lingkungan.

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1. INTRODUCTION

1.1 Backgrounds

Uncontrolled population growth has affected the increasing of slum amount, especially in big city. Slum amount is crucial problem that related to settlement procurement for low economical community in developed country. Through this research, the researchers offer a solution, it is a rural land consolidation that is executed participatory for increasing environment quality and land value.

To overcome slum problem, it is needed a solution that related to settlement procurement and reallocation, thus environment and location of settlement will be getting better. Land consolidation is a step of region reallocation that is done participatory and has objective to increase quality and value in a region. Land consolidation is one of the method or solution that can overcome slum problem.

Land consolidation is an activity that is done by community. Thus, the community role is important in this step, before reallocating, it is done by some steps that related to land consolidation. Step is preparation, data collection, and restructuring. In this research, land consolidation method is applied in slum area in Jelegong Village, Rancaekek District. Jelegong Village is suitable for land consolidation because there is slum location that aggravated by bad environmental condition, especially because industrial waste that destroys natural resources. This condition has been going on for so long and until now it is still has not found the solution.

1.2 Objectives

Land consolidation is objected to make reallocation plan mode of Jelegong Village through socialization to community about the importance of land consolidation. By doing land consolidation in Jelegong Village, it is hoped that community can get the great benefit, especially in environmental reconstruction.

2. LITERATURE REVIEW

2.1 Slum

In big cities, there are always slums area, the happening of slum is caused by uncontrolled urbanization. According to Law No. 4 Article 22 of 1992 on Housing and Settlement: Slum is

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settlement that uninhabitable because it is not in accordance with land planning/ zoning, high building density in limited area, prone of social and physical disease, low quality of building, unserved by adequate environmental infrastructure, and endanger continuity of life and its inhabitants.

According to Johan Silas, slum can be defined into two parts, first is the area that the formation because of limitations of city to accommodate city development, thus resulting competition of using urban lands. While the high density settlement is the embryo of slum. Second is area that spreading locations geographically is pressed by city development which was good first, then becoming slum slowly. The cause is economic stagnation of social mobility (Setiani, 2010).

Slum can cause continuity problem, in addition to an effect on the health and quality of slum community's life, problem of safety and hygiene of urban environment related to slum. In general problems that often occur in slum are as follow.

- a. Size of building is very narrow, it is not qualify standard of inhabitable building
- b. The house which coincide with another make slum area prone to fire
- c. Road is narrow and inadequate
- d. Unavailability of drainage network
- e. Lack of clean water supply
- f. Electrical network is chaotic
- g. Sanitary facilities is inadequate

2.2 Land Consolidation

Definition of land consolidation according to Regulation of National Land Agency Head No.4 of 1991 is land regulatory about restructuring of land tenure and use also acquisition effort for development, to increase environmental quality, and natural resources preservation by involving community participation. Conceptually, land consolidation is aimed at some of following.

- a. Combining scattering and uncontrolled land systematically according to land zoning
- b. Distributing of existing consolidated land to land owner proportionally
- c. Adjusting the shape and location of land parcel ownership

Land consolidation generally is done in rural and agriculture area. Land consolidation, for the first time, was found in Europe around 14th century, this activity was often used to resolve land issues, especially in dispersed area. Besides, land consolidation had a major role in improving the quality and quantity of agricultural production in an area (Demetriou, 2012). Land consolidation contains two main components, there are land reallocation and spatial planning.

Principles that contained in land consolidation are 1) build without displacing; 2) development activity from people, by people, to people; 3) Carried out by mutual agreement (consensus); 4) Provision of lands through LDFD (Land Donation for Development); 5) Development is financed through Land Replacement of Development Fee (LRDF); 6) Transparency; 7) Justice; 8) The

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certainty of land right with orderly environment. Basically, the principles of land consolidation is community-oriented, thus it is needed coordination step between citizens to consolidate land.

3. METHODOLOGY

The execution of land consolidation to overcome slum problem is done by some steps. Generally, method that us dine in land consolidation is qualitative and quantitative methods. These two methods is done to get a solution of land consolidation that community-oriented with field data. Land consolidation consists of three steps.

3.1 Preparation

Preparation step consists of location searching and counseling.

- 1) Location searching is an initial step of land consolidation. In this research, it is chosen Jelegong Village, Rancaekek District. The reason behind this location is Jelegong Village can be categorized as slum, it is aggravated by bad environmental condition because industrial waste that destroy natural resources. This condition has been going on for long time and has not found any solution. The easyness level of location reaching is one of the reason too. Jelegong Village is close to the highway, thus the location is easy to reach and very strategic.
- 2) Counseling is done directly to community that will be land consolidation participants in Jelegong Village. Counselung is provided to potential participants with the intention that they will understand the benefit of land consolidation, also they are willing to participate actively in its implementastion.

3.2 Data Collection

Data collection step is aimed to get data and information that related to land consolidation demographic and area, also supporting documents. Data collection consists of five steps.



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Figure 1 Data Collection

- 1) Land ownership subject and object identification in potential location, it is identification of land ownership, land tenure, and land history.
- 2) Surveying and mapping.
- 3) Surveying and mapping the circumstation that results land circumstation map
- 4) Surveying and mapping the details that results parcel land map that draws all size, shape, and position of each land
- 5) Topographic surveying and land use mapping

3.3 Restructuring

Restructuring is the main step of land consolidation. Restructuring the area of land consolidation refers to spatial data (map) and demographic data. The distribution of consolidated land refers to LDFD. Besides restructuring, it is added some public facilities to support community life. After land consolidation model is obtained, then there is socialization that related with outcome, demarcation of land, and certification.



Figure 2 Socialization

4. RESULT

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Land consolidation is closely related to land owned by participants. Land consolidation will give significant impact on land rights. Therefore, since the beginning of location determination planning, it must be known and approved by land owner. Related to that, land consolidation should provide protection of participants' land rights.

Protection of participant's land rights will be analyzed the socialization relationship prior to implementation of land consolidation to participants, then participation of land consolidation and consensus to determine new parcel design, with protection of land rights. The survey itself is done by spreading questionnaires to residents of Neighborhood (RT) 03 Commune (RW) 07, Jelegong Village, Rancaekek District. Result that obtained from field survey is shown in the figure 3, which is the distribution of houses that located in Neighborhood (RT) 03 Commune (RW) 07, Jelegong Village, Rancaekek District.

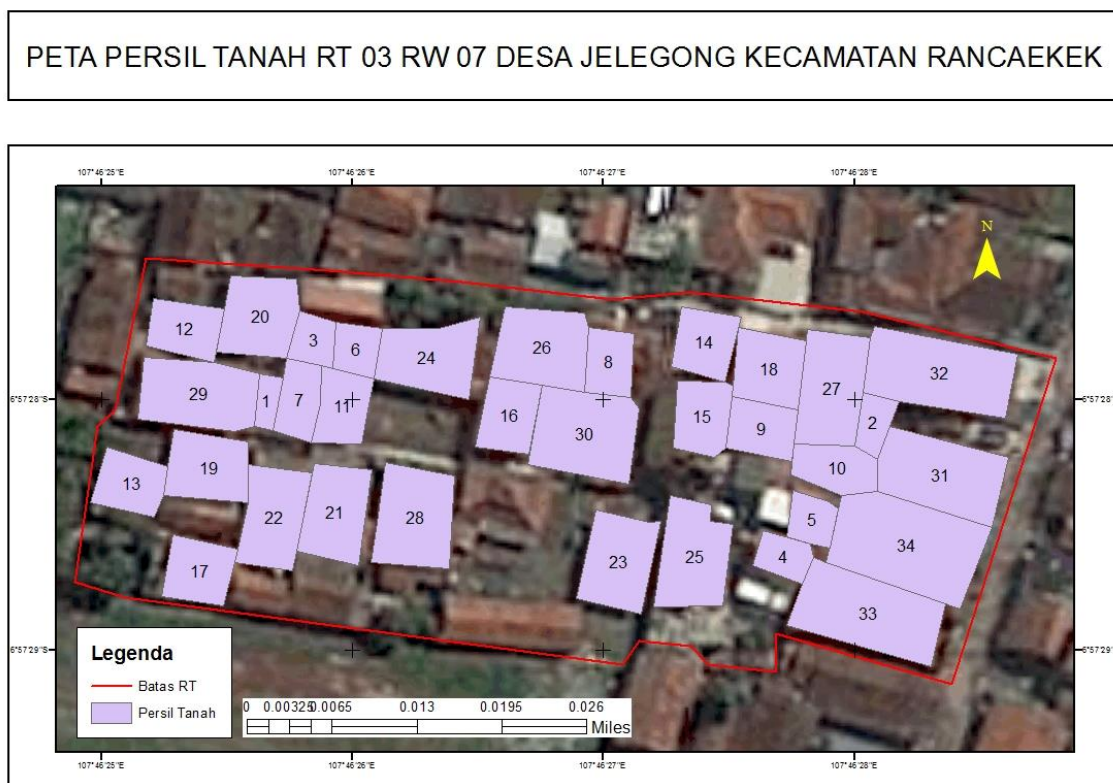


Figure 3 Distribution of RT 03 RW 07 Jelegong Village Land Parcels

Public facilities in RT 03 RW 07 Jelegong Village are only mosque and field, field is not in form of sport facility, it is only existing land of former house that has been destroyed and razed to the ground. According to questionnaire, people complained and are not satisfied with the narrowness of road.

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After survey and data collecting, data processing is done to make land consolidation design in RT 03 RW 07 Jelegong Village. To get area of consolidated land, the calculation method will use LDFD with adding public facilities and LRDF. Calculation method of LDFD is shown as following.

$$\%LDFD = \frac{\text{Additional of Public Facilities dan LRDF}}{\text{Location Area} + \text{Existing Public Facilities}} \times 100\% \dots 1)$$

After calculation with LDFD equation, the result is shown in table 1.

Table 1 Land Distribution for Consolidation

No	Land Use	Area (m ²)		Area Difference	Explanation
		Existing	Needs		
1	ROAD	1.747	1.953	-206	Road widening
2	PARK	-	230	-230	Not exist
3	SPORT FACILITY	200	230	-30	Widening
4	LRDF	-	300	-300	Not exist
5	MOSQUE	312	312	0	Exist
6	LAND PARCELS	2.554	1.788	766	
	TOTAL	4.813	4.813	0	

Using the result of calculation, the researchers make land consolidation design that shown in figure 4.

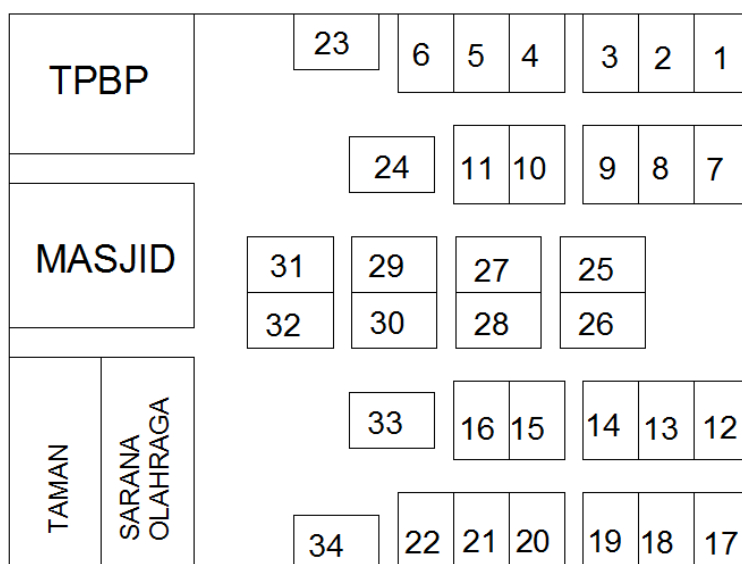


Figure 4 Land Consolidation Design

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From that design, it is added public facilities, such as, park, sport facilities, and LRDF that used to pay the implementation of land consolidation that equivalent with land. Besides 2D design, it is also made land consolidation design in 3D. This 3D design is ease the community to see impact of land consolidation. 3D design is shown in figure 5.

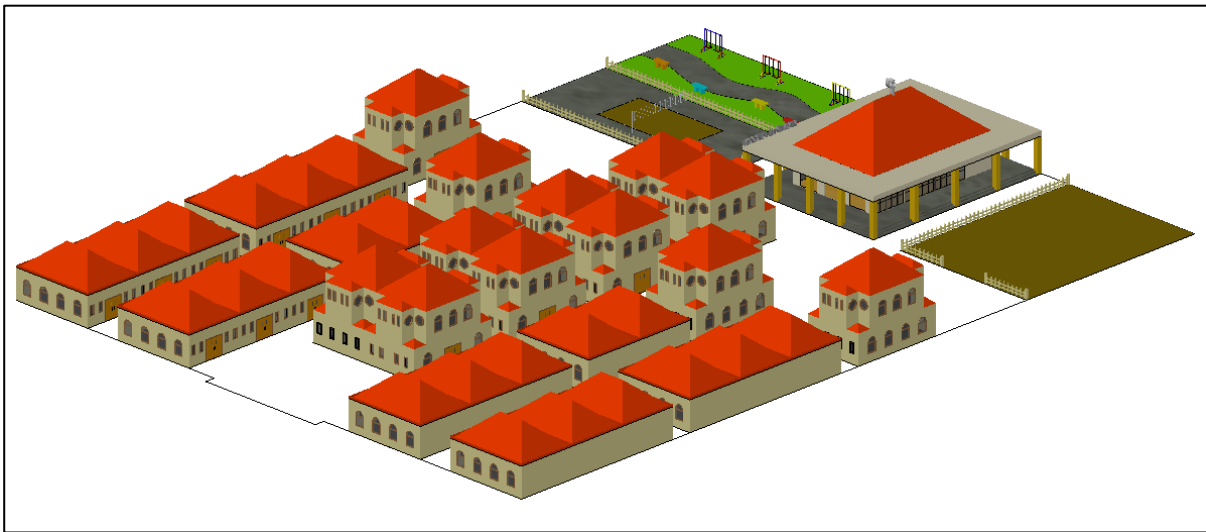


Figure 5 Land Consolidation Design in 3D

5. CONCLUSION

Slum problem can be tackled by land consolidation. According to calculation of land consolidation in Jelegong Village, it is obtained restructuring of settlement and adding public facilities to support public activities. Total existing location is 4.813 m² with lack of road and absence of park. After consolidation, it is hoped that the initial area remains the same, but there are some changes in every land use area and layout, also adding public facilities, such as LRDF of 230 m² and park of 230 m², even there is decreasing of land parcels area up to 76 m². Generally, land consolidation creates layout change of environment and resolve slum problem.

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BIOGRAPHICAL NOTES

Dr. Ir. Bambang Edhi LEKSONO, M.Sc, born in 1957, Graduated in 1982 as Engineer in Surveying and Mapping from Bandung Institute of Technology (Indonesia), obtaining Master degree in Urban Survey & Human Settlement Analysis (ITC-Holland) in 1990 and doctorate degree in Geography in 1996 from Universite de Nice Sophia Antipolis (France). Now, Dr. Ir. Bambang Edhi Leksono, M.Sc is member of Survey and Cadastre Research Group in Institut Teknologi Bandung, Indonesia.

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