

## Slum Resettlement Along Brantas Riverbanks Case Study at Malang City, East Java

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### Abstract

Urban redevelopment and slum resettlement have become critical issues in many towns in Indonesia. Urban resettlement, however, is one of the most complicated and difficult challenges. Malang City, one of the representative towns in Indonesia tried to displace the slums from the high risk areas along Brantas riverbanks to the RUSUNAWA in 2012. However the result was quite different from the government's intentions. This study will describe the slums living conditions and analyze their reasons did not leave high risks zones. The objectives are to understand the dwellers' incentives to move from the viewpoints of the economy, the living conditions, community ties, and the dwellers' opportunistic responses. One hundred slum households lived closest to the riverbanks were interviewed. This study revealed that the living conditions in the slums were not necessarily bad and that the slum dwellers had strong economic incentives to continue living there. Nevertheless, they realized that as illegal squatters, they did not have enough incentives to leave from the slums, even with the high risks. Alternative facilities for living and economic activities that could give enough incentives to resettle have not been provided yet by government.

**Keywords:** high risk zones, incentives, RUSUNAWA, slum living conditions

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### INTRODUCTION

According to 2004 UNDP data, Indonesia's population living in slums was 17 million people, and the estimated slum area was 54,000 hectares. In Malang City, a typical city with a population of roughly 820,000, 110,300 people were living in the slums in 2010. Among them, 47,504 were illegally living along the Brantas riverbanks with high risks of floods and landslides.

The Malang City government enacted local regulations regarding slum resettlement in 2001 and construct the RUSUNAWA program in 2012. 293 households applied for the 192 RUSUNAWA housing units. All of the applicants were tenants of previous slums. No homeowners in the slums applied to the RUSUNAWA. This program could not reduce the number of houses in the slums. Previous studies reported that Malang City slum residents along the Brantas River did not want to move to the RUSUNAWA. They preferred a slum rehabilitation program without resettlement or resettling to horizontal housing complexes. Viewing the complexities associated with the development of land, housing, and basic city services, a well-designed development plan

including a resettlement project is essential. Successful handling of resettlement can bring in new development opportunities and accelerate the future growth of urban cities (Dowall, World Bank, 2006).

In order to obtain information about the slum inhabitants and to understand their living conditions in the slums, this paper will focus on the living conditions of the slum dwellers along the Brantas riverbanks in the four wards close to the Malang City downtown (Kotalama, Mergosono, Kidul Dalem, and Jodipan) where slums have developed.

### RESEARCH METHOD

The aim of this research is to answer the question of why slum dwellers prefer to live in the slums by identify their living conditions and analyze the resettlement problem.

Data and information were obtained through field research on slum households that were interviewed in March 2013. One hundred households on the edge of the Brantas riverbanks in four wards were selected as the respondents. 25 households in each ward living next to the riverside were selected.

Secondary statistical data were obtained from the Central Bureau of Statistics, the Malang City Planning and Development Division, and the Public Works Division.

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## **The Slum Problem in Malang City**

### **Population Density**

The average population density per km<sup>2</sup> was roughly 7,500. Concentration of population in certain areas such in Klojen Sub district, the center of the city. Was very high roughly 12,000 km<sup>2</sup>. Densely populated slums are located in Klojen and Kedungkandang.

Population increases have required the city to develop various urban facilities, those made expand the burden and role of the city government.

### **Slum Zones in Malang**

The slum areas, 592 hectares, in Malang City are spread across 19 of the 57 wards. Eight of the 19 wards are located along the Brantas Riverside, close to the downtown of the city. The most densely populated slum among the four wards is in Kotalama, with population density approximately 44,881 people per km<sup>2</sup> in 2010.

### **Necessity of Resettlement from Slum Zones**

#### **The Living Conditions of the Slum Dwellers**

In 2005, 16,797 residents channeled their sewerage directly into the river. In 2009, 8,020 households of Malang City did not have a septic tank, and many of them threw their garbage into the river. Thus, their actions could have had a poor impact on the environment of the river and led to increased water contamination. In 2010, the level of coliform bacteria was 58,000 jml/100 ml in the Brantas River, exceeding the standard of 10,000 jml/100 ml. Drinking water taken from the groundwater along the river could be contaminated. According to Sanitation Strategy report of Malang, illness rate of diarrhea reached 33,712 in 2011.

#### **Risks**

Jasa Tirta I, a public company which is responsible for water management, reported that major floods in the Brantas River can occur approximately every 20 years.

Overflows of less than 1 meter in height occur every year. Floods of more than 1 meter over normal levels occurred in 1943, 1963, 1987, 2004, 2009, and 2012. In 2004, a flood swept away one bridge that crossed the Brantas River in Samaan Ward. Three other bridges and at least 14 homes were damaged. In 2012, a flood inundated dozens of houses and one bridge along the riverbanks in the Blimbing Subdistrict. Landslides occurred during the rainy seasons of 2005, 2007, 2008, 2009, 2011, and 2013. In 2011, two houses totally slid away and six were partially damaged. Fortunately, no one died during the last decade,

but residents in the affected areas suffered economic losses.

Very destructive floods are rare, however, does not have sufficiently long historic of precipitation and floods. It is impossible to estimate the risks based on objective and scientific data. A critical problem is that people, particularly even the dwellers in the slums along the Brantas River, do not perceive the risk of floods as imminent.

### **Resettlement Problems**

Removing slums is not simply a matter of exiling slum dwellers to other places. Relocating a population is a complex process with significant direct and indirect impacts on the population and on governments (Ramires, 2011).

An involuntary resettlement program was held in 1995 (Wicaksono, 2011). However, the Malang City government could not control the evacuated lands. Several years later, people invaded and started illegally squatting on the abandon land.

A voluntary resettlement assisted by the city government was held in 2001, aimed to move 98 households in the slums along the Brantas River to RUSUNAWA in Kuthobedah, Kota Lama Ward. Each housing unit of RUSUNAWA was rented to the resettled slum dwellers. Unfortunately, three years after resettling to RUSUNAWA, some of the resettled people returned to their previous slums. The same thing also happened in Chandigarh, India, when the government tried to rehabilitate slum dwellers by providing formal housing but the beneficiaries often sold off their alternative tenements and returned to their previous slums (Sanjiv Sahai, 2006).

In 2012, Malang City developed a RUSUNAWA in Buring Ward, Kedungkandang Subdistrict, roughly 5 km from the center of Malang City. Two twin blocks with five stories available for 196 households were constructed. Each 24 m<sup>2</sup> unit comprised private and communal facilities. Unfortunately, all 196 households that applied for the RUSUNAWA flats were tenant dwellers in the slums. No homeowners applied for this project. No houses could be removed after the resettlement of the former tenant dwellers.

### **Perceptions of the Slum Dwellers Based on Survey Responses**

Most slum dwellers did not know both the government regulation on resettlement nor the RUSUNAWA program. Some realized that the government planned to relocate them, but most of them did not want to move. Slum dwellers felt it was convenient to live in their current places

because of their nearness to city facilities. In addition, one RUSUNAWA housing unit is too small compared with the average size of a house in the slums, more than 24 m<sup>2</sup>.

In a previous study on the resettlement program in Abidjan, Ivory Coast, the government prioritized the autonomous and voluntary actions of the resettled people, focusing on cash compensation, allowed them to choose the locations, and encouraged the self-construction of their houses (World Bank, 2006).

Slum residents assessed the RUSUNAWA project as ineffective at removing the slums. The slum dwellers were not used to living in multistoried flats. The slum dwellers thought that the government promotion of RUSUNAWA was not necessary because they already had their own property for living and had no intention of leaving from the slums.

Good neighborhood relationships in the slums such responses to voluntary actions called, *gotong royong* (voluntary work), implied the sense of belonging to their communities, which comprised intimate neighborhoods. Their daily visiting among neighbors and relatives indicated good mutual relationships, which could have been a source for financial assistance or mutual labor support. These collected activities based on good and intimate neighborhood relationships made the dwellers feel mutual security and comfort living in the slums. Thus, such communities along the riverbanks have sufficient extent incentives to encourage the dwellers to continue to live there.

#### **Governance of the Brantas River**

Several institutions are responsible for management of the Brantas River. The East Java provincial government and *Jasa Tirta I* are responsible for utilizing and managing water and riparian resources along the Brantas River. On behalf of the central government, the Directorate of Water Resources, Ministry of Public Works, is responsible for financing and directing technical assistance for the local governments, the Public Works Division of East Java Provincial, and the Public Works Division of Malang City, which areas signed to operate and maintain the river's infrastructure.

The central government, the provincial government, and *Jasa Tirta I*, which are authorized to manage the riparian lands of the Brantas River, did not maintain them well. Yet the Malang City government, as the party responsible for dwellers living in the riparian areas, has no rights regarding the riparian

management. The problem is the lack of coordination among stakeholders, particularly between the city government, which intends to resettle the dwellers in the riparian region, and *Jasa Tirta I*, which has the authority to control the riparian areas.

#### **Awareness of the Risks**

The Brantas River within Malang is characterized by its sharp slope of riverbanks and rapid flow of water. The Malang City government by The Public Protection and Disaster Division, a division of the *Badan Kesatuan Bangsa, Politik dan Perlindungan Masyarakat* (Board of National Unity, Politics, and Society Protection) of Malang City government, anticipate and handle problems of disaster occurs in Malang City. They specifies high-risk zones and recommends the resettlement of dwellers in these zones. This division identified 27 locations prone to landslide and seven locations prone to flooding along Brantas riverbanks in Malang City.

#### **Public Works Division Malang**

The Malang City Public Works Division obtains its budget from the Ministry of Public Works to maintain river embankments and also obtains from Malang City a budget to prevent disasters, e.g., drainage and maintenance of canals. In the late 1980s, the local government constructed river embankments, but these did not cover all areas, only certain parts. After a serious flood in 1987, the local government tried to establish a drainage system and started an extension program on disaster awareness, but it was not a routine extension. It was done only when an emergency happened or when a critical emergency, particularly a flood, was forecasted to engulf other settlements downstream.

Malang City enacted regulations on construction and land use, but these are not being enforced yet. Riverbanks as conservation areas should be protected from any building construction and all land use should be prohibited (Malang City Spatial Plan 7, 2001). To prohibit illegal settlements in the riparian areas, there is no option except for moving the dwellers to other safe areas. Additionally, various complementary measures are necessary, such as providing new residential housing, such as the RUSUNAWA flats, with convenient access and transportation services (Revision of Malang City Spatial Plan 7, 2001). Malang City has a land use plan that uses the riparian areas as greenbelts to protect them from being occupied by other illegal settlers.

Although the regulation on spatial planning has already been established, there are no strict enactments to make it feasible. The city government can only advise that people not build houses in the high-risk areas along the Brantas River's banks and induce the slum dwellers to move voluntarily to the RUSUNAWA flats. However, because of the insufficient governance and inconsistent countermeasures, many people still try to invade the riverbanks and build shelters there. The city government has never officially promoted the socialization of spatial planning and the awareness of the risks attached to living along the Brantas River (Malang City Regulation on Spatial Planning 7, 2001).

**The Slum Dwellers' Awareness of the High Risks in Hazard Areas**

Slum dwellers living along the Brantas River's banks are vulnerable because of the high risk of floods and landslides. The dwellers and other citizens recognize that floods and landslides are frequent incidents that could happen during any rainy season. Floods and slides annually afflict the riverbanks. Residents must be vigilant against such hazards every day, but they are not well aware of the danger and its consequences. Slum dwellers usually do not pay attention to the land use demarcation of riverbanks. In fact, they continue to build new houses there.

In recent years, every rainy season from January to March floods have afflicted settlements zones along the river's banks. Since 1965, the city government has tried to reduce flood damage by recommending changing walls to brick and covering floors with tile or cement. These are effective at reducing the risk of infections such as cholera and leptospirosis by making it faster to clean houses after floods. The city government recommended that slum dwellers set up windows facing the river in order to monitor the river's flow. In addition, the government recommended installing boundary walls along the riverside to reduce the inflow from floods and recommended constructing embankments, at the dwellers' own expense.

In some riverbank slums, heads of residence units (ketua RT) use walkie-talkies and security alarms to advise residents of urgent situations and of the danger of floods. These tools are aimed at assisting the transmission of information to all dwellers about the rainfall in the upstream regions and the rising water levels of the Brantas River.

**Living Conditions of the Slum Dwellers**

Housing and Infrastructure Facilities

Wards including slums along the riverbanks are densely populated and crowded with construction. The distance between each house, at just 1 or 1.5 meters, is close, and the 100 houses interviewed were extremely close to the river's edge. Such houses are in danger of being washed out by floods. However, the land size of the majority of slum dwellers was more than 24 m<sup>2</sup>, larger than a RUSUNAWA housing unit. It is noticeable that the houses were mostly constructed to be permanent and that the floors were tiled to protect the dwellings from flood damage.

The questionnaire indicates that slum dwellers have easy access to city facilities. The slums are near major routes, making it easier to use public transportation, which has various routes for getting to workplaces and schools. The slum settlement sampling places were located in the center of Malang City and surrounded by various city facilities including educational, health, and economic. Most households have installed power service lines, and the rest hook up electric wires to their neighbors' homes (Table 1). Some households already have tap water. Half of households already have access to garbage janitor services, and others throw their garbage into the river.

Table 1. Urban Facilities

Facilities	Ward				Total
	Kidul Dalem	Jodipan	Kotalama	Mergosono	
Tap Water	18	4	6	0	28%
Electricity: Powerline	21	18	22	23	84%
Garbage Janitor	25	11	0	18	54%

(unit: number of respondents)

Source: Author's survey in Malang, 2013

**Economic Conditions**

In 1978, when the slum settlement began to grow, the major livelihood of the slum dwellers was stands at the Kotabaru railway station or the Pasar Besar market. Other common jobs for slum dwellers are laborer (factory workers and shop assistants) and unskilled wage worker. Households that maintain self-employed businesses (e.g., tailor, sign painter) make up almost one-quarter of all respondent households, and few are unemployed. All of the sampled household heads worked in the informal sector. They could get various daily jobs in the central zone of the city where economic facilities and activities are concentrated.

The average monthly income of the household heads and household members was less than the regional minimum wage in 2012 (1.34 million rupiah per month). But total household income including family members, i.e., wife, children, however, could exceed the regional minimum wages, except in Jodipan. After deducting basic needs expenses (consumption costs, transportation costs, electricity, tap water, clothing, taxes, school fees, debt repayment), the households could retain the surplus (Table 2). Most slum dwellers' economic conditions were not terrible. They often possessed motorcycles, bicycles,

televisions, radios, refrigerators, and financial assets (gold, saving deposits, etc.).

The average asset value of the respondents was high (Table 3). This asset value was based on the market values of the land, the houses, and the durable goods. The most valuable assets were land and houses. Many people believe that the advantage of the location leads to the extremely high value of slum dwellers' assets.

As seen in Table 4, slum dwellers can afford to pay their monthly repayments. Most of their monthly payments were for motorcycles for commuting.

**Table 2.** Slum Dwellers' Revenue

Household Characteristics	Unit (Average)				Total or average of 4 wards
	Kidul Dalem	Jodipan	Kotalama	Mergosono	
Number of laborers/HH	49	37	42	48	176
Economically dependent members	47	41	34	54	176
Income of HH head (IDR /month)	868,000	668,000	840,000	931,000	826,800
Income of HH member (IDR/month)	702,000	410,000	592,000	513,000	554,300
Total Income of HH (IDR/month)	1,840,000	1,034,200	1,432,000	1,524,400	1,457,650
HH basic expenditures (IDR/month)	907,360	743,744	743,744	1,009,983	860,190
HH remaining income (IDR/month)	932,640	234,329	680,256	514,417	592,411

Source: Author's survey in Malang, 2013

**Table 3.** Slum Dwellers' Assets

Assets Value (IDR)	Unit (Average)				Average of 4 wards
	Kidul Dalem	Jodipan	Kotalama	Mergosono	
Total Assets	42,784,400	22,527,600	36,406,400	31,050,700	33,192,150
Land and house	32,400,000	33,360,000	30,780,000	25,360,000	30,475,000
Durable Goods	10,384	5,867,600	5,626,400	5,690,200	6,892,150
Financial Assets	1,829,400	2,370,500	856,000	260,720	1,329,155

Source: Author's survey in Malang, 2013.

**Table 4.** Loan/Credit of Slum Dwellers

Financial Conditions (IDR)	Unit (Average)				Average of 4 wards (100 HH)
	Kidul Dalem	Jodipan	Kotalama	Mergosono	
Monthly installment payments	81,920	122,760	0	110,760	78,860
Loans from institutional lenders	4,466,667	6,957,143	No credit	6,132,857	5,855,556
Loans from neighbors	56,000	37,500	63,333	62,143	54,744

Source: Author's survey in Malang, 2013

**Table 5.** Origin of the Land and Length of Residence

Condition	Ward				Average or total of 4 wards
	Kidul Dalem	Jodipan	Kotalama	Mergosono	
Length of residence	39,2	18.8	29	19.7	27
Origin of land					
squatting on idle land	5	12	1	5	23
buying	3	12	24	15	54
inheritance	12	0	0	0	12
no answer	5	1	0	5	11
Origin of residents (HH)					
Inside of Malang City	19	22	1	22	64
Outside of Malang City	6	3	24	3	36

(unit: number of respondent)

Source: Author's survey in Malang, 2013

All respondents from Kotalama Ward were migrants from other towns, and they had occupied their houses by purchasing them. People believe in the effectiveness of the land transactions of selling and buying. The majority of Kidul Dalem dwellers are indigenous Malang citizens and had obtained their land through squatting or inheriting from their parents. In the other two wards, Jodipan and Mergosono, most of the slum residents are indigenous Malang people (Table 5). It is difficult to persuade indigenous people to move.

**Legal Status and Living Conditions Could Hamper Human Security**

Table 6 shows that there were no land disputes regarding the slum areas along the Brantas riverbanks. The respondents realized that the slum lands belonged to the government and were under the control of Jasa Tirta I (Government Regulation on Public Company Jasa Tirta No. 46/2010). However, Jasa Tirta I seems to have never controlled these areas. Many of

the households living in their own houses paid taxes for their land and houses. They paid from 3,600 rupiah to 55,000 rupiah depending on the size of the land and the buildings they occupied. None of them had a land title as proof of land ownership. Their proof of living in the slums was the Pethok D and their receipts from land and property tax payments. The tax receipts served as their authorized evidence allowing them to stay there. The legal status of the slum dwellers is not secured or authorized. The Pethok D and the tax payment receipts just function as evidence that substitutes for permanent address records and tax payments. They in themselves never serve as a land title or indicate ownership of land and housing. The residents are driven into such conditions.

Not only the slum dwellers' legal status but also their living conditions are unsecured. Looking at Tables 7 to 9 shows the critical living conditions of the slum dwellers.

**Table 6.** Land Disputes and Proof of Ownership

Ownership and Its Evidence	Ward			
	Kidul Dalem	Jodipan	Kotalama	Mergosono
Land disputes	No	No	No	No
Ownership of				
Own	20	24	25	20
Rent	5	1	0	5
Proof of land ownership				
Pethok D	17	7	0	0
Receipts from property taxes	3	15	23	22
Land Certificates	0	0	0	0
No answer	5	3	2	3

(unit: Number of respondents)

Source: Author's survey in Malang, 2013

**Table 7.** Floods, Landslides, and Outbreaks of Disease in 2012/1

Ward	Disaster			Diseases	
	Flood	Landslide	Land Fracture	Dengue fever	Diarrhea
Kidul Dalem	25	0	0	0	0
Jodipan	25	0	16	0	1
Kotalama	25	12	11	0	52
Mergosono	25	6	2	1	10

(Unit: number of respondents)

Source: Author's survey in Malang, 2013.

**Table 8.** Domestic Water

Domestic water	Ward				Total (%)
	Kidul Dalem	Jodipan	Kotalama	Mergosono	
Tap water	18	4	6	0	28%
Well	0	11	9	14	34%
River flow	0	0	0	0	0%
Public plumbing	7	10	10	11	38%

(Unit: number of respondents)

Source: Author's survey in Malang 2013

Note: Public plumbing refers to a common water resource

**Table 9.** Sanitation Conditions

No	Living Condition	Ward			
		Kidul Dalem	Jodipan	Kotalama	Mergosono
1	Lavatory				
	Private toilet	18	17	18	15
	River		3	7	5
	Public toilet	7	5	0	5
2	Sewerage				
	River	25	25	25	25
	Septic tank	0	0	0	0
3	Garbage disposal				
	River	1	14	25	8
	Janitor	24	11	0	17

(Unit: number of respondents)

Source: Author's survey in Malang, 2013

Table 7 shows that floods and landslides happened in 2012. Residents know to a substantial extent the risks of the slum zones, but they do not want to leave these dangerous residential zones. Even taking into account these critical disadvantages, they are still economically secure enough to obtain job opportunities and sufficient income. The economic conditions of the city's development make them select this danger in secured living places. This is highly ironic and not humanitarian.

Another ironic problem is related to the environmental issues induced by the unsafe conditions of the slum dwellers. They realized that river water had been already contaminated and was dangerous. Some of them already used tap water, and the others used water from wells or public plumbing. Fortunately, all residents already used clean water. No respondents used river water as their domestic water in the slum areas along the Brantas River (Table 8); nevertheless, all respondents discharged their household sewage and excreta directly into the river without any treatment. Living along the side of the river made it easy for the residents to throw sewerage into the river. The deterioration of the sanitation conditions of the river is accelerated by this opportunistic living attitude of the slum dwellers. The slum dwellers rarely had septic tanks, which caused the emission of odors and gave a bad image to the surrounding areas. The residents did not spend money on sanitation investments because their living was not secured. The same thing has happened regarding garbage disposal. Fewer than half of the respondent households had signed up with the garbage janitors who collected the garbage. Most slum dwellers preferred to throw their garbage directly into the river (Table 29). Table 29 indicates that all respondents from Kotalama

Ward threw their garbage and sewerage into the river. Water contaminated by garbage and improperly disposed-of sewage could have influenced the outbreak of diarrhea in Kotalama Ward in 2012 (see Table 7). The unsecured position of the slum dwellers has induced various poor side effects.

## CONCLUSION

### Necessity of resettlement

Large towns in Indonesia need urban redevelopment to cope with the rapid urbanization, industrialization, and population inflow. All roads both major and minor are highly crowded by automobiles, bikes, and large trucks. Redevelopment of various sectors is essential, for example, road expansion, constructing residences and residential zones, industrial estates, various types of schools, hospitals, and parks, and developing power supply transmissions, water supplies, and city gas. Urgent response to such increasing demand is a critical issue in every town in Indonesia. Malang City is a typical city confronting such urgent issues. The city, however, as with many other cities, has a critical slum problem in its central city zone. The slums are located along the Brantas River, which flows through the central area of the city. Many people live there even though the riverbanks are highly risky zones prone to floods and mudslides. The resettlement of the people and removal of these slums should be highly prioritized from the viewpoint of urban redevelopment and human security.

### Reasons people continue to live in the slums

The aim of this paper is to answer the question of why slum dwellers prefer to live in the slums. The reasons can be categorized (grouped) as economic incentives and related

reasons; and governance and awareness of the risks.

1. Economic incentives and related reasons:

(1) Slum dwellers are not necessarily poor; (2) Their incomes, particularly their household incomes, are never low compared with households in other areas. They have chances to get lucrative jobs as long as they live in the slums; (3) Even though they cannot get permanent jobs, they can get various daily jobs in the central zone of the city where economic facilities and activities are concentrated; (4) The slums are located near to the city center and are very convenient for commuting to workplaces, schools, and other facilities. Access to such opportunities is crucial in selecting residences.

2. Governance and awareness of the risks:

(1) Slum dwellers are mostly squatters, but public sectors, mainly Malang City in this study, supply power, water, and other public services to protect the living rights of the illegal dwellers. The public sector cannot stop such services or else the slum dwellers' living conditions would become vulnerable and their human security would deteriorate; (2) The RUSUNAWA projects, mere cosmetic countermeasures, cannot solve the problem of slum zones because many people came to the slum zones because of their economic opportunities and their accessibility to urban facilities, built houses in the slums, and now rent the houses or their rooms to tenants. They can easily find tenants, even if their previous tenants move to a RUSUNAWA unit; (3) No proper governance exists along the banks of the Brantas River. There was no control of riparian areas or strict action to enforce the regulation about restricting construction along the riverbanks. The city government and Jasa Tirta I did not make any agreement to keep people away from the riverbanks or to keep the land vacant; (4) The risks are not seriously perceived among the slum residents or by the city government. The city government also does not precisely and properly announce the risks to the people. Lack of governance or riparian area control implies the government's lack of awareness of the risks.

**Problems and Implications**

Risks increase because of the deforestation and urbanization in the upstream areas and because of global warming. Large rainfalls in Batu City and other upstream areas can rush and flow into Malang City. Because there is no large water reservoir in the upstream areas, river flow can suddenly spike and reach the river's edges. The

river edges in the center zone of Malang City are quite densely populated, and there are many houses along the river. A several-meter increase in river flow could cause a flash flood, affecting many houses and people.

No proper governance exists in the riverbank areas of the Brantas River. Malang City has attempted to remove the slum zone, but because of the lack of after care in the restricted zones, many people invaded again. Resettlement itself is undertaken by Malang City, but the riverbanks management, particularly the reentry restrictions, is the responsibility of Jasa Tirta I, which is a state-owned company solely authorized to manage the river. The lack of coordinated governance of the river caused the failure of the slum removal. The city government is obliged to continuously pay the social costs.

Resettlement efforts such as the RUSUNAWA projects can be said to be cosmetic countermeasures that do not solve the problem but cause the different problem of slum zones. Because of the unexpected and opportunistic responses of the slum residents, the new resettlement facilities were occupied only by former tenant dwellers in the slum zones. Homeowners did not move to the new housing facilities provided by the government. The number of illegal buildings could not be reduced, and new tenants of the RUSUNAWA project further dreadfully made subcontracts with other people to obtain some percentage of the marked-up rent between the city government and the real tenant residents of the RUSUNAWA.

Taking into consideration the various conditions and the people's responses, cosmetic countermeasures are not effective. The economic and living conditions of the slums encourage the dwellers to stay for long periods of time and remove the incentives to move to other areas. The incentive structure cannot be changed by individual countermeasures such as the RUSUNAWA resettlement program or by the lack of governance, for example, the lack of strict control over the riverbank zone after slum removal. These cause public and social costs. Economic incentives to make people leave the slums are essential. Resettlement and removal of slum zones need to be planned and executed as a component of integrated urban redevelopment.

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