

## Community Participation in 'Sanimas' Program in Kediri City

Chairil ANWAR<sup>1)</sup>, Chikashi DEGUCHI<sup>2)</sup>, Tetsunobu YOSHITAKE<sup>2)</sup>

### Abstract

"Sanitation by Communities," or *Sanimas*, is an approach to upgrade the sanitation infrastructure in poor urban areas in Indonesia. *Sanimas* programs have been implemented in more than 100 communities since 2003. The *Sanimas* Program was introduced in Kediri City in 2003; it enabled community residents to participate in the project from the planning stage to the infrastructure maintenance stage. In this program, the community can select the solution in response to its own problem; community participation is emphasized so the residents can sustain the infrastructure after the project is finished.

This paper aims to 1) investigate the role of the community from the planning to the operating and maintaining stages, 2) find some socio-economic factors that affect community participation in the *Sanimas* Program. For these purposes, questionnaires were distributed to the community residents in four urban-villages: *Mrican*, *Balowerti*, *Dandangan*, and *Jamsaren*. The correlation between socio-economic variables and community participation was evaluated. To evaluate the relationship between community participation and the sustainability of the infrastructure, the correlations among monthly financial income, number of users, and the monthly operational-maintenance costs were investigated.

The analysis revealed that 1) in all stages of the program, the planning stage has the highest effect on good operating practices and on maintaining the infrastructure; 2) socio-economic factors such as age, education level, profession, level of income, and status in the family affect the participation levels of community residents.

### Key Words :

Community participation, Infrastructure development, *Sanimas* Program

## 1. INTRODUCTION

Based on the data from The National Statistical Bureau 2004, the usage ratio by citizens in urban areas for the sanitation infrastructure was 46.6% and 49.4% in rural areas; the usage ratio by urban citizens for the waste ducting system was only 2%. The total usage ratio for sanitation services was 49.1%, and the quality of sanitation services is still low in Indonesia<sup>1)</sup>.

*Sanimas* is a community-based sanitation program for providing sanitation or domestic sewage infrastructures in Indonesia. The *Sanimas* project, which is based on the demand by, and situation of, the community, aims to:

- 1) Provide technical assistance to implement community-based sanitation from planning to operation and maintenance.
- 2) Ensure that community residents, contractors, and local authorities choose the most appropriate system and facilities.
- 3) Provide training and capacity-building for local governments, communities and NGOs.

1) Master Student, Dept. of Civil and Environmental Engineering  
(Regional Planning and Development Board of Kediri City, East  
Java, Indonesia)

2) Associate Professor, Dept. of Civil and Environmental Engineering

- 4) Improve, develop and maintain the community sanitation infrastructures in slum areas.

The *Sanimas* program is unique in that community residents can act on their own initiative. It aims to assist the cooperation between the community and its local government to improve sanitation conditions. Many communities will further develop the project.

The previous development concept of *Sanimas* was exclusively to increase sanitation facilities. This caused low public participation and low sustainability of the sanitation infrastructure. Now its concept is based on community participation, through which the community is empowered by playing a role in the project. Amstein S.R.<sup>2)</sup> stated that the degree of community participation, which is key to the success of the project, is categorized by five variables: *Initiative* (who has the idea), *Goal* (how to set the goal), *Resources* (local or outsourced), *Process* (how the community has control), and *Output* (for whom)<sup>3)</sup>.

The social, culture, and economic conditions will influence the form and level of community participation in certain activities<sup>4)</sup>. In consideration of those research results, this paper focuses on social and economic factors and sets two hypotheses: 1) Does community participation in planning and construction of facility lead to good operation and maintainance? 2) Are there any socio-economic factors that affect community participation in *the Sanimas* Program?

## 2. STUDY AREA AND SURVEY

### 2.1 Study area

The *Sanimas* program is based on community-driven development principles. Communities can choose three sanitation improvements:

1. Shared communal tank for a group of four or five households. In this model, the household has to build own toilet and connect it to the tank;
2. Development communal bathing, washing and toilet block (*mandi, cuci, kakus or MCK*) facilities, including biogas capture and reuse; or

3. Shallow sewer leading to a communal sewage treatment facility (usually a baffled reactor). For this option, each individual household must provide own toilet and connection to the sewer.

*The Sanimas* program in Kediri City developed the communal bathing, washing and toilet block (*mandi, cuci, kakus or MCK*).

The research area is Kediri City in Indonesia. **Fig. 1** shows the location of East Java Province and **Fig. 2** shows the location of Kediri City, which is about 175 km from Surabaya City with a population of 241,130. The administrative region consists of three sub-districts: *Mojooroto, Kota* and *Pesantren*<sup>5)</sup>. Since 2003, *Sanimas* projects have been conducted in four urban villages, *Mrican* in *Mojooroto*, *Balowerti* and *Dandangan* in *Kota*, *Jamsaren* in *Pesantren*. **Fig. 3** shows the location of the four *Sanimas* projects. These projects cover 64, 80, 72 and 42 households, respectively.

In *Mrican*, the name of the Community-Based Organization (CBO), or the *Kelompok Sanitasi Masyarakat (KSM)*, is *KSM Lestari*. Its sanitation facility was constructed in 2003. In *Balowerti*, *KSM Sanimas* was constructed in 2004. In *Dandangan*, *KSM Sandang Asri* was constructed in 2006. In *Jamsaren*, *KSM Jama Sari* was constructed in 2006.

### 2.2 Survey

Survey respondents were selected by a proportional random sampling among the fixed users who had no personal latrines. The expected sample number of respondents was about 125 households. Questionnaire surveys were distributed in July 2008. As shown in **Fig. 3**, the number of questionnaire respondents was 30, 40, 35 and 20 in *Mrican*, *Balowerti*, *Dandangan*, *Jamsaren*, respectively. **Table 1** shows the the questionnaire content. The variables and factors for measuring the community participation in all steps of the project are listed in the upper part. The socio-economic variables and factors are listed in the lower part.

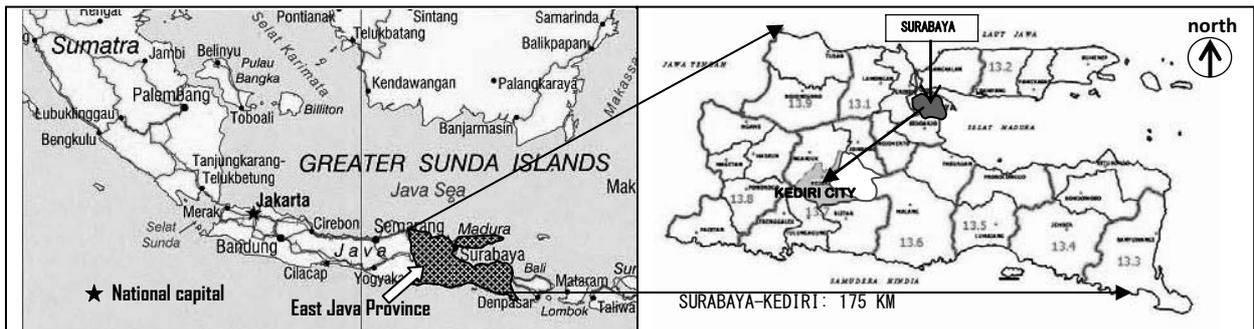


Fig. 1 Location of East Java Province

Fig. 2 Location of Kediri City

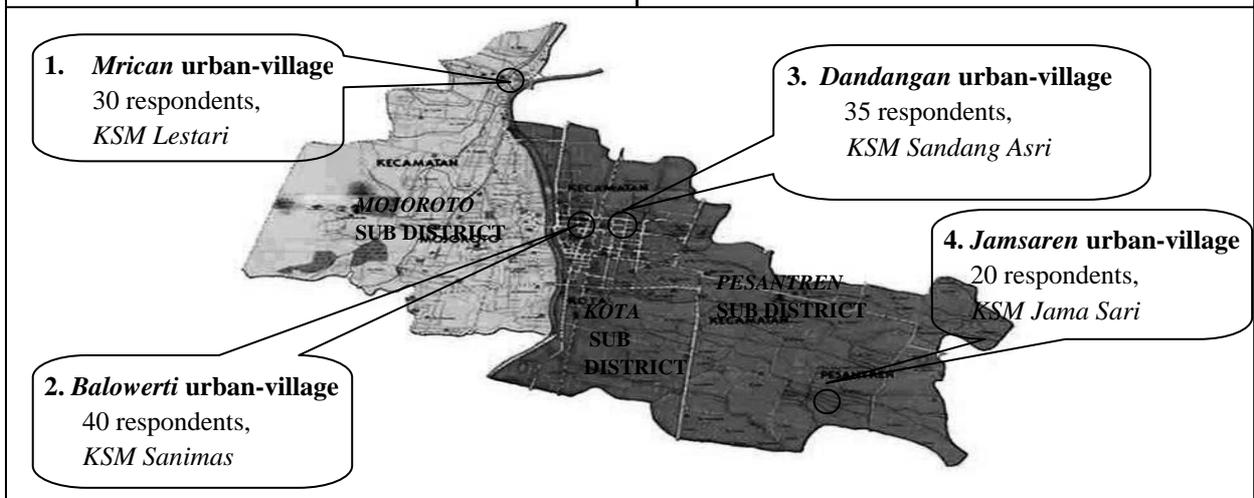


Fig. 3 Sanimas projects and sample numbers of respondents in each urban-village

Table 1 Variables and factors for community participation

Research Question	Variable	Sub-variable	Parameter
Community participation	Community participation in each stage of project	Community participation in planning (1st stage)	Times of attending meeting, kind of contribution
		Community participation in construction (2nd stage)	Times of attending meeting, the involvement at project
		Community participation in monitoring and evaluation (3rd stage)	Times of attending meeting, monitoring of project, kind of contribution
		Community participation in operation and maintenance (4th stage)	Times of attending meeting, contribution of money for operation and maintenance cost
	Form of community participation	Contribution	Idea, labour, money, construction material
Factors which influence community participation	Social factor	Age	Years
		Education level	Elementary school, junior high school, senior high school, or higher
		Occupation	Student, civil servant, private sector, army/police, private employee, farmer, self employed, unemployment
		Number of household members	Number of household members
		Status in the family	Head of household or others
		Housing	Owner or lease
		Inhabitant status	Indigeneous or not
		Living year	How long do households live in the area (years)
		Accessibility	Live on street side or off street side
		Ownership of private toilet	Existence of private toilet in house
	Source of clean water	Source of water for daily life	
	Economic factor	Occupation	Occupation of household
		Household income	Monthly household income in IDR

### 3. RESULTS AND DISCUSSION

#### 3.1 Attributes of respondents

There may be seven factors that affect community participation. **Table 2** shows the selected seven factors: age, educational level, occupation, monthly income, living year, housing and accessibility. The age composition of respondents in each research location was dominated by two groups, '36<x<45' and '46<x<55'. In *Balowerti*, the group that is more than 55 years old has the highest percentage of 30%. But those of the '26<x<35' group are relatively high in other villages. The majority have an education level of 'Junior high school'. However, the percentage of 'Senior high' in *Dandangan* is a little high at 42.9%, and the 'Elementary school' group in *Balowerti* is highest at 62.5%.

**Table 2** Attributes of respondents

Attributes	<i>Mrican</i>		<i>Balowerti</i>		<i>Dandangan</i>		<i>Jamsaren</i>	
	Freq	%	Freq	%	Freq	%	Freq	%
<b>Age</b>								
<25	2	10	-	-	7	20	2	10
26<x<35	6	20	5	12.5	9	25.7	4	20
36<x<45	<b>12</b>	<b>40</b>	9	22.5	<b>12</b>	<b>34.3</b>	<b>7</b>	<b>35</b>
46<x<55	9	30	<b>14</b>	<b>35</b>	5	14.3	6	30
>55	1	3.3	12	30	2	5.7	1	5
<b>Educational level</b>								
Elementary	12	40	<b>25</b>	<b>62.5</b>	9	25.7	6	30
Junior high	<b>13</b>	<b>43.3</b>	12	30	9	25.7	<b>8</b>	<b>40</b>
Senior high	4	13.3	3	7.5	<b>15</b>	<b>42.9</b>	6	30
Bachelor	-	-	-	-	2	5.7	-	-
University	1	3.3	-	-	-	-	-	-
<b>Occupation</b>								
Student	-	-	-	-	-	-	-	-
Civil servant	2	6.7	1	2.5	1	2.9	-	-
Private sector	<b>16</b>	<b>53.3</b>	<b>21</b>	<b>52.5</b>	<b>19</b>	<b>54.3</b>	<b>13</b>	<b>65</b>
Army/Police	-	-	-	-	1	2.9	-	-
Private employ	3	10	4	10	4	11.4	1	5
Farmer	-	-	4	10	1	2.9	1	5
Self employed	3	10	2	5	3	8.7	-	-
Unemployed	6	20	8	20	6	16.9	5	25
<b>Monthly income (in 1000 IDR)</b>								
< 250	<b>12</b>	<b>40</b>	<b>19</b>	<b>47.5</b>	<b>19</b>	<b>54.2</b>	6	30
250-500	9	30	15	37.5	8	22.9	<b>7</b>	<b>35</b>
500-1,000	7	23.3	3	7.5	4	11.4	4	20
1,000-1,500	1	3.3	1	2.5	1	2.9	3	15
1,500-2,000	1	3.3	2	5.0	1	2.9	-	-
>2,000	-	-	-	-	2	5.7	-	-
<b>Living year</b>								
1-5 year	1	3.3	2	5	2	5.7	2	10
6-10 year	3	10	1	2.5	2	5.7	-	-
11-15 year	5	16.7	3	7.5	6	17.1	1	5
>15 year	21	70	34	85	25	71.4	17	85
<b>Housing</b>								
Owner	19	63.3	28	70	17	48.6	18	90
Tenant	6	20	9	22.5	13	37.1	-	-
Parent's asset	5	16.7	3	7.5	-	-	2	10
others	-	-	-	-	5	14.3	-	-
<b>Accessibility</b>								
Live on street side	9	30	9	22.5	15	42.9	<b>18</b>	<b>90</b>
Live off street side	<b>21</b>	<b>70</b>	<b>31</b>	<b>77.5</b>	<b>20</b>	<b>57.1</b>	2	10

'Private sector' dominates the occupations. Average monthly income of the respondents is 500.000 IDR.

Kediri City is Rp. 825,000 IDR in 2009, and the monthly household incomes are relatively low. The attributes of the respondents in four urban villages can be summarized as productive age (26-55 years old), private sector occupation, 15 years living in their areas, private housing ownership, low education and low income.

#### 3.2 Community participation

##### 3.2.1 Community participation in planning stage

Community participation in the planning stage is evaluated based on the number of times that the respondents attended the meeting. Based on the Community Action Planning (CAP) document, there are several activities and training in which community residents can participate. The CAP consists of the following activities<sup>6)</sup>:

1. Preliminary meeting with the nominated community
2. Defining the user(s)
3. Completing sanitation mapping
4. Choosing the sanitation technology facility
5. Completing the detailed engineering design (DED) & budget plan
6. Establishing the Community Based Organization (CBO) or *KSM*
7. Establishing the financial mechanism
8. Opening the new CBO's account in a local bank
9. Scheduling the construction, financial mechanism, training, health campaign and official announcement.

According to the interview with the consultant, Borda, meetings between the community residents and local government staffs were held once a week and more than 8 times for 1.5-2 months. **Fig. 4** shows some scenes at community meetings and **Fig. 5** shows the number of participants and the percentages of respondents in the planning stage.



Fig. 4 Some scenes at community meetings

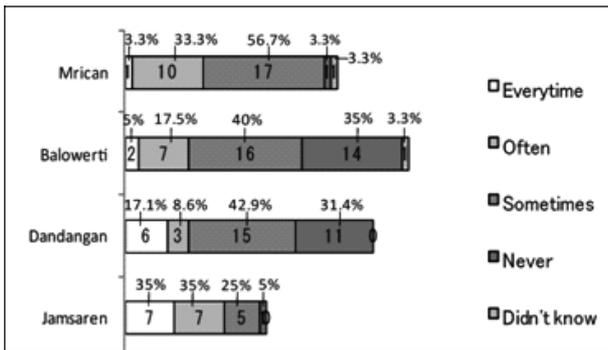


Fig. 5 Number of participants and percentages of respondents in planning stage

Fig. 5 shows that 3.3% of respondents in Mrican attended during the planning stage. 'Every time' has the lowest percentage, but the percentage for 'Often' is 36.9%, the second highest. The combined percentage for 'Every time', 'Often' and 'Sometimes' is the highest at 92.6%.

In Balowerti, the percentage for 'Every time' is low at 5%. The percentage for 'Often' is 17.5%. But the percentage for 'Never' is highest at 35%.

In Dandangan, the percentage for 'Every time' is second highest at 17.1%. 'Every time' and 'Often' are not high at 25.7%. But the percentage for 'Sometimes' is 68.6%. However, 'Never' is high at 31.4%.

In Jamsaren, 35% of respondents attended both 'Every time' and 'Often', respectively. These percentages are relatively higher than the ones for the other villages. The combined percentage that includes 'Sometimes' is 95%.

The percentages for 'Did not know' are low at 3.3% and 5% in Mrican and in Jamsaren. These values mean that good public relations were kept in both urban villages.

Table 3 Contents of contribution in planning stage

Contribution	Mrican		Balowerti		Dandangan		Jamsaren	
	Freq	%	Freq	%	Freq	%	Freq	%
Idea/suggestion	16	53.3	4	10	9	25.7	2	10
Physical power	8	26.7	1	2.5	7	20	14	70
Money	-	-	4	10	3	8.6	-	-
Material	-	-	2	5	-	-	1	5
More than 1	2	6.7	-	-	5	14.3	2	10
Nothing	4	13.3	29	72.5	11	31.4	1	5

Table 3 shows the community residents' contributions in the planning stage of ideas, physical power, money, and construction materials for the projects. 'More than 1' means that a respondent contributed multiple tasks, and 'Physical power' means that a respondent contributed to the preparation of a meeting or similar work in the planning stage.

As for the highest percentages in each sub-district, 'Idea/suggestion' is 53.3% in Mrican and 'Physical power' is 70% in Jamsaren. These values suggest that the community residents of both villages positively attended the meeting and discussed the construction plan, financial plan and maintenance of the facilities. On the other hand, the percentage for 'Nothing' is high at 72.5% in Balowerti. This low participation may cause low sustainability in maintaining the facilities.

In Dandangan, the percentage for 'Nothing' is not low at 31.4%; the percentages of 'Idea/suggestion' and 'Physical power' are 25.7% and 20%, respectively. Fig. 5 and Table 3 show that the levels of community participation are high, although the income level and education are low. This participation was because the community residents expected to use the facilities.

### 3.2.2 Community participation in construction stage

Fig. 6 explains the community contributions to the project in the construction stage. In Jamsaren, the percentage for 'Yes' is the high at 70%. Dandangan and in Mrican follow it, respectively, at 52.5% and 50%. In this stage, some community

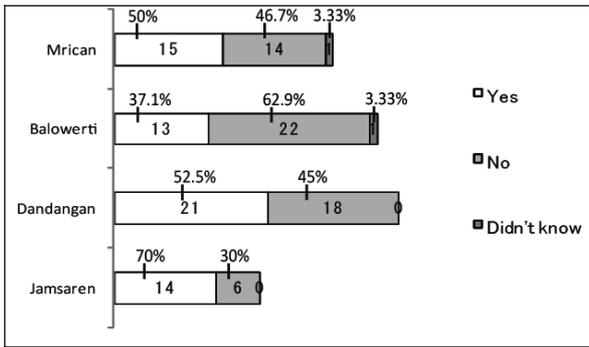


Fig. 6 contribution of respondents in the construction stage

residents were appointed as workers and were trained to have skills for the construction.

Table 4 Types of contribution in the construction stage

Contribution	Mrican		Balowerti		Dandangan		Jamsaren	
	Freq	%	Freq	%	Freq	%	Freq	%
Physical work	15	50	4	10	-	-	12	60
Money	-	-	11	27.5	9	25.7	-	-
Material	-	-	2	5	-	-	-	-
Nothing	15	50	16	40	23	65.7	6	30
Did not know	-	-	4	10	1	2.9	1	5
More than 1	-	-	3	7.5	2	5.7	1	5

Table 4 shows the types of contributions made by residents in the villages. ‘Physical power’ means that the respondent worked in the construction of sanitary facilities and infrastructure. In this stage, community residents are required to be skilled at construction work. When they work as laborers, they are paid by the CBO.

As for the highest percentages in each sub-district, ‘physical power’ is at 50% in Mrican and 60% in Jamsaren. These values suggest that the community residents of the both village worked positively on construction of the facilities. This collaborative construction work may deepen their bond and develop their emotional attachment to the facilities.

In Balowerti and Dandangan, the contribution of ‘Money’ was 27.5% and 25.7%, respectively. This money can be used to buy construction materials and to employ their community residents as construction workers. But their percentages for ‘Nothing’ are high at 40% and 65.7%, respectively. The reason for these low percentages should be investigated.

Table 5 Community members and their participation in the construction stage

Sanimas Location	Number of house hold	Community’s participation form			
		Total (IDR)		Average (IDR)	
		In-cash	In-kind	In-cash	In-kind
Mrican	64	2,019,712	5,423,522	31,558	84,743
Balowerti	80	6,056,113	500,000	75,701	6,250
Dandangan	72	4,000,000	12,744,670	55,556	177,009
Jamsaren	42	4,000,000	10,248,524	95,238	244,012

Note : In-cash : cash money

In-kind : man power, construction material

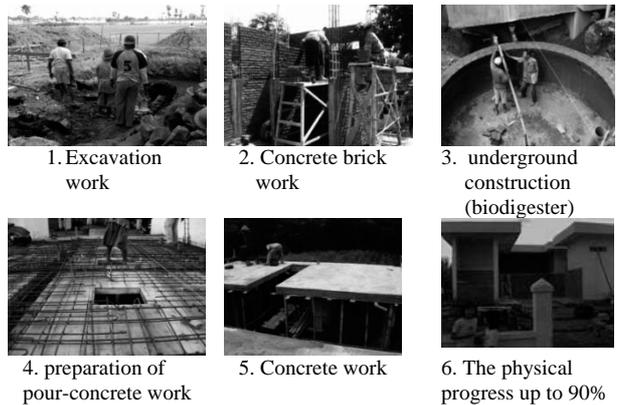
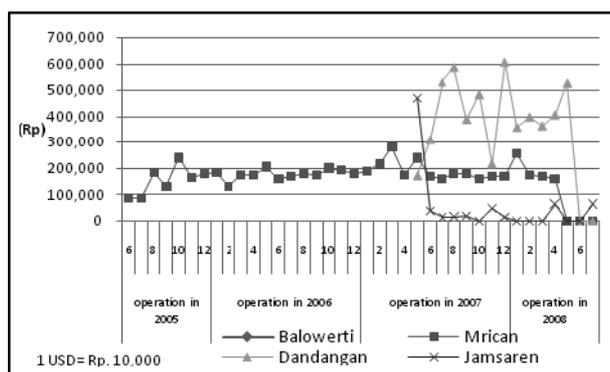


Fig. 7 Construction works in Jamsaren

Table 5 shows the number of community members who use the facilities and their contributions to the construction. There are two types of contribution: in-cash (cash money) and in-kind (manpower and materials). The average values (total/household) are calculated to compare community participation levels. It can be seen that at 95,238 IDR and 244,012 IDR, Jamsaren has the highest average values for in-cash and in-kind, respectively. Dandangan has the second highest total value at 232,565 (55,556+177,009) IDR. Mrican and Balowerti follow in third and fourth place, respectively. These results could be related to the higher education levels and monthly incomes, as mentioned earlier. Fig. 7 shows the residents working in the construction stage in Jamsaren.

### 3.2.3 Community participation during the operation-maintenance stage

After the construction of the facility, the Managerial Board is responsible for the operation and maintenance of the infrastructure



**Fig. 8** Financial incomes from fixed users (households) and temporary users

in accordance with the standard operational guidance given by BORDA. After conducting the management training, *KSM* has to:

1. Operate the sanitation infrastructure;
2. Care for the sanitation infrastructure;
3. Be responsible for the technical function-system of the settlement waste-treatment.

In this stage, a household pays 5,000 IDR per month for a subscription. **Fig. 8** shows the monthly financial incomes except for *Balowerti*, because there is no report in *Balowerti*.

*Mrican* started to operate their infrastructure in 2003. *Dandangan* and *Jamsaren* started their operations in 2007. According to that figure, *Mrican* has steady incomes and the incomes of *Dandangan* fluctuate. The incomes of *Jamsaren* are very low except for the starting month.

The average income in *Dandangan* is the highest income of 413,676 IDR per month. *Mrican* has an average income of 132,978 IDR and *Jamsaren* has the lowest of 49,800 IDR. Some reasons for the low income in *Jamsaren* are 1) some of community built their own latrine in their houses; 2) the distance to the infrastructure is quite far; 3) they use it only for emergency purposes, and so on.

From the above results, it can be said that the maintenance condition in *Dandangan* is the best, followed by *Mrican* and *Jamsaren*.

**Table 6** Community perception about the implementation of *Sanimas* program

Attributes	<i>Mrican</i>		<i>Balowerti</i>		<i>Dandangan</i>		<i>Jamsaren</i>	
	Freq	%	Freq	%	Freq	%	Freq	%
<b>Effectiveness of accessing information during the project</b>								
Very easy	12	40	3	7.5	17	48.6	7	35
Easy	12	40	10	25	9	25.7	5	25
Moderate	1	3.3	5	12.5	5	14.3	3	15
Difficult	1	3.3	6	15	-	-	-	-
Very difficult	-	-	3	7.5	-	-	-	-
Don't know	4	13.3	13	32.5	4	11.4	5	25
<b>Acceptability (supported by community)</b>								
Always	20	66.7	18	45	21	60	18	90
Often	5	16.7	1	2.5	3	8.6	2	10
Sometimes	1	3.3	2	5	4	11.4	-	-
Never	-	-	-	-	-	-	-	-
Don't know	4	13.3	19	47.5	7	20	-	-
<b>Transparency</b>								
Very trnspt	12	40	2	5	18	51.4	6	30
Transparent	13	43.3	14	35	7	20	11	55
Moderate	1	3.3	4	10	3	8.6	3	15
Less trnspt	1	3.3	6	15	-	-	-	-
Very secret	-	-	3	7.5	-	-	-	-
Don't know	3	10	11	27.5	7	20	-	-
<b>Accountability</b>								
Yes	28	93.3	24	60	32	91.4	20	100
No	2	6.7	5	12.5	-	-	-	-
Don't know	-	-	11	27.5	3	8.6	-	-
<b>Sustainability (related with subscription fee)</b>								
No matter at all	14	46.7	14	35	23	65.7	10	50
No matter	16	53.3	25	62.5	8	22.9	10	50
Objection enough	-	-	-	-	-	-	-	-
Objection	-	-	-	-	-	-	-	-
Very object-tion	-	-	-	-	-	-	-	-
Don't know	-	-	1	2.5	4	11.4	-	-

### 3.2.4 Community participation during the monitoring-evaluation stage

*Sanimas* belongs to the community, and community residents have the right to access the development process by themselves. Therefore, evaluation and monitoring must be carried out by some stakeholders.

**Table 6** shows the answers to the questions about *Sanimas* projects. As for 'Effectiveness of accessing information during the project', the percentages of 'Very easy' are very high, at more than 35% in *Mrican*, *Dandangan* and *Jamsaren*. These values mean that these *Sanimas* projects provided good information management. In *Balowerti*, the percentage of 'Don't know' is very high at 32.5%, which means that the information management was not as good.

As for 'Acceptability', the percentages are high at all locations, which suggest that the residents accepted the *Sanimas* projects. The percentages of 'Very Transparent' and 'Transparent' are relatively high in *Mrican*, *Dandangan* and *Jamsaren*. But the percentage for 'Don't know' is high at 27.5% in *Balowerti*.

Next, for 'Accountability', the percentage of 'Don't know' in *Balowerti* is 27.5%. There may be some problems about the information system or public relation system in *Balowerti*.

Then, for 'Sustainability' in relation to the subscription fee, the percentages for 'No matter at all' and 'No matter' are relatively high in all surban villages. This means that the community residents will pay the monthly fee of 5,000 IDR for using the facilities and maintain them by themselves.

#### 4. SUMMARY

Regarding operation and maintenance, *Dandangan* has the best operating conditions, *Mrican* is the second and *Jamsaren* is the third. In the construction stage, the money contributed in *Jamsaren* and *Dandangan* is relatively higher than in *Mrican* and *Balowerti*.

In the planning stage, the levels of community participation in *Mrican* and *Jamsaren* are higher than in *Dandangan* and *Balowerti*.

These results mean that 1) funds are required for good maintenance and operation of the facilities and 2) to keep the funding, high community participation in human power or money contributions are needed for the planning and construction stages.

In *Dandangan*, the educational level and monthly income are relatively higher than in other urban villages. Various aged residents also attended the meeting in *Dandangan*.

Therefore, it is very important for keeping good operations and maintenace of the sanitary facilities

to let more highly educated residents attend the meetings in the planning stage.

It can be seen that there are strong relationships between accessibility to information, transparency, accountability and community participation levels in the planning stage and construction stages.

The results can be summarized as follows.

- (1) The conditions for operation and maintenance of *Sanimas* projects in *Dandangan* are good. This could be based on the financial funding.
- (2) In *Mrican* and *Jamsaren*, there are correlations between the participation levels in the planning and construction stages.
- (3) Good information and public relation systems will lead to high community participation.
- (4) It is important to deal with various aged residents and higher educational residents in the meetings, especially in the planning stage.

More detailed analyses are needed to investigate the mechanism for the behaviors of residents to develop public participation in the *Sanimas* Program in Indonesia.

#### REFERENCES

- 1) National the Department of Settlement and Regional Infrastructure (2004), The Statistical Data of Kimpraswil in 2004.
- 2) Amstein, S.R., A Ladder of Citizen Participation; Classic Reading in Urban Planning an Introduction, Mc Graw Hill Inc, New York, 1995.
- 3) Setiawan, Bakti, Ir, M.A, Ph.D, 2003. An article presented in the national seminar : Society's Right to vote in the making and implementing process of space use policy.
- 4) Asmara, B.J., Thesis: Community Participation in Sustaining the Infrastructure of The *Kampung* Improvement Program (KIP), 2006.
- 5) Kediri in figure 2007/2008, Statistical Board in Kediri.
- 6) Community Action Plan (CAP) Document of Community Based Organization (CBO) or *Kelompok Swadaya Masyarakat (KSM) Lestari, Sanimas, Sandang Asri, Jama Sari, Dokumen Rencana Kerja Masyarakat untuk Pembangunan MCK Plus<sup>++</sup>*, Kediri.