

COMMUNITY-BASED SANITATION PROGRAM (*SANIMAS*) AS AN EFFORT FOR IMPROVING ENVIRONMENTAL QUALITY IN URBAN SLUM SETTLEMENTS

Winy Astuti

Urban and Regional Planning, Universitas Sebelas Maret Surakarta,
Indonesia

Email : winnyast64@gmail.com

ABSTRACT

The second theme of the UN Conference on Human Settlements II in Istanbul in 1996 was sustainable human settlements development in an urbanizing world, which stated that waste is among ten important issues needing to be addressed. Apart from that the Post Agenda 2015 Goal 6 was to ensure availability and sustainable management of water and sanitation for all. Indonesia, where urbanization has grown significantly over recent years, is facing a waste problem. The central government released Sanimas program, which aimed to build sanitation infrastructure to upgrade its provision in urban settlements and to improve settlements' environmental quality. Sanimas specifically targeted dense and poor urban settlements. In Surakarta, the program was implemented in 2006, Sanimas constructed public toilets and a communal wastewater treatment facility at Kelurahan Sangkrah,. This paper was designed to identify Sanimas' implementation process and the networks of the related institution. This inductive research was based on institutions related to the program's implementation and triangulation with secondary data. The research found that the implementation of the Sanimas Program has established a Community-based Organisation named KSM, which mediates between the local government and the community. Through KSM, inter-organisational networks have been developed, which indicated expanding linkages of the community to several organisations, and to higher level government and foreign agencies. Inter-organisational networks sustain the program, improve the quality of environment as well as increase community capacity.

Keywords : *community-based program, sanitation, sanimas, post agenda 2015, environment*

INTRODUCTION

Urban Poverty and Sanitation in Indonesia

In many developing countries, poverty has become an immense issue particularly in urban areas. Due to its characteristics of settlements –lack of space, poor housing quality and infrastructure shortage –an urban low-income community has higher risk of becoming poor than those in rural areas. Urban low-income communities have to pay for almost everything they need on a daily basis –things that rural people can get freely. Furthermore, urban low-income communities are highly vulnerable from economic shocks as well as environmental problems (The World Bank, 1990 in Moser, 1996). Their exclusion from decision-making processes related to their neighborhood has ruled them out from access to government provision of urban services. Urban poor need capacity building to participate and be involved in the government programs, where participation brings community members into contact with a wider network of individuals and organizations related to their cause. Turner (1987) and Silas (2005) believe that the community puts up four-fifths of the development input in developing countries. Therefore, the community-based development becomes very important in creating collaborative planning in the implementation of the program.

Sanitation and water supply has become a considerable issue as, in 2004, only 55 % of the global community gained proper sanitation supply and services. In Indonesia, Millennium Development Goals targeted 73 % of the population (around 25 million of Indonesian) to gain access to sufficient and proper sanitation and water supply by 2015 (WSP, 2008). Development of sanitation infrastructure is constrained by the high density population of informal settlements, where they are characterized by insufficient access to safe water; inadequate access to sanitation and other infrastructure; insecure residential status; poor structural quality of housing and insufficient living area (UN Habitat 2003).

THEORY / RESEARCH METHODS

Inter-organizational Networks, Social Capital and Sustainability

The Report from Water and Sanitation Program (2011) stated that sustainable sanitation can be assessed with reference to five indicators. The first indicator is health and hygiene, which includes the risk of exposure to pathogens and hazardous substances that affects public health linked to the sanitation system. Secondly, environment and natural resources involve the required energy, water and other natural resources for construction, operation and maintenance of the system, as well as the potential emissions to the environment resulting from its use. The third indicator is technology and operation, which incorporates the functionality and the ease with operating the entire system including the collection, transport, treatment and reuse and/or final disposal. This indicator also includes the possibility of technology being constructed, operated and monitored by the local community. The

next indicator is financial and economic issues in terms of the capacity of households and communities to pay for sanitation, including the construction, operation, maintenance and necessary reinvestments in the system. The fifth indicator is socio-cultural and institutional aspects, which refers to the socio-cultural acceptance and appropriateness of the system, convenience, system perceptions, gender issues and impacts on human dignity, also efficient institutional settings.

Strong social and inter-organizational networks also enhance community capacity. In evaluating a community's social networks, consideration can be made to three indicators. The first indicator is structural characteristics, such as size or number of linkages. The second indicator is the relationships among network members, such as the frequency and intensity of their contacts. The last indicator is the benefits that members receive from their network ties, such as emotional or tangible support and access to social contacts (Goodman et al, 1998). Study of social networks in Indonesia has examined the role of social capital in low-income people's approaches to coping with resource shortage (Grootaert, 1999; and World Bank, 2000 in Silvey and Elmhirst, 2003). Social hierarchies within networks lead to differentiated access to resources and differentiated work and service obligations. Social networks are by definition relational and dynamic (Silvey, R and Elmhirst, R, 2003; Degennes, A and Forse, M, 1999). Community organizations for the poor can be valuable and resourceful partners when it comes to finding viable infrastructure solutions for the poor. Besides providing a means of idea sharing, asset pooling and mutual support, community organizations create channels for poor people to talk to their local and national government and to undertake collaborative development projects in housing, upgrading, land tenure, infrastructure and livelihood.

The purpose of community-based sanitation programs is to establish a framework for sustainable pro-poor services in Indonesia, through the development of effective and coordinated policy-making, institutional reform, strategic planning and awareness building (WSP, 2011). In operation of the program, this develops strengthened policy, institutions, strategies and action plans. Several coordination works have to be conducted by government supported by donors. Local capacity building is thereby developed as well as behavioural changes of poor communities toward sanitation better.

In spite of reformed agendas of Government plans and increased investment in urban sanitation, success of a Community-based Sanitation Program is also dependent on the mandates and roles of stakeholders (WSP, 2011). Lessons learned from Community-based Sanitation Programs in some places show the development of community based organisations. In Blitar, in order to sustain and strengthen work on sanitation, the municipality has facilitated the formulation of subdistrict and neighborhood sanitation POKJAs (*Kelompok Kerja* = Working Groups). The POKJAs was a community organization, which was elected by and from the community member who had a role for mediation, communication between the community and the government in conducting the government program. These prepared a City Sanitation Strategy as a basis for a proposal to the provincial government for having funding of some sanitation activities. In Jambi, the program formulated AKKOPSI (*Aliansi Kabupaten/ kota Peduli Sanitasi* (Alliance of Districts and Cities Concerned about Sanitation)). In Jambi, a recently formed

network of districts and cities concerned about sanitation facilitates the sharing of information and lessons learned. The role of municipal sanitation POKJA is established in the name of 'Sanitation Coordination Team of Jambi City.

Therefore, social and inter-organizational networks have been very important in implementation of Community-based Sanitation Programs, where capacity of the community is increased as indicated from enhanced connections to members of their neighborhood to address community wide concerns with several stakeholders involved in the program including Government actors as well as private actors of development.

Sanimas Program

Sanimas stands for *Sanitasi Berbasis Masyarakat* (Community-based Sanitation), a national program in Indonesia that is developed based on the concept of community empowerment on infrastructure development. Sanimas specifically targeted urban substandard settlements and used demand-based technical solutions to reduce water-pollution by small and medium enterprises and settlements. The program was pioneered and funded by AusAID (Waspola Project) in cooperation with the World Bank in the early years. In 2004, Sanimas was put into operation by Bappenas (Badan Perencanaan Pembangunan Nasional, Indonesian National Bureau of Planning and Development). Since 2006, SANIMAS has been implemented nationally under the coordination of the Department of Public Works. DEWATS provides technical expertise to manage Community-Based Sanitation (CBS) as a viable sewerage and sanitation option in a specified areas, either on-site systems or centralized sewerage systems, which can fulfill the demand of stakeholders for basic sanitation. BORDA is a stakeholder's partner in a Community-based sanitation program, which has a role for conducting tests to the quality of waste after having waste water treatment.

Indicators of success of the Community-based Sanitation Program are as follows (BORDA, 2011): firstly, increased central and local government sanitation investment, which is indicated from medium term budget allocation up 400% for 2010-2015, national budget allocation up 200%, special budget allocation up 200% and local budget allocation up 300%. Secondly, reform agenda features in government plans stated in the Roadmap for Accelerated Sanitation Development in Human Settlements have been adopted. Thirdly, high level policy statements and announcements have been made by the Vice President, minister of Public Works and Health and the National Development Planning Agency. Fourthly, the roles and mandates of stakeholders have been defined and implemented. Fifthly, City Sanitation Strategy has been formally adopted by municipalities.

Surakarta as a Study Area

Surakarta is a municipal city located in the core of SUBOSUKA region, Central Java, Indonesia. It is surrounded by three regencies, i.e. Boyolali, Sukoharjo and Karanganyar. With an area of 44.04 square-km, it is dominated by developed areas

with the population of approximately 600.000 people. The levels of poverty are as high as 22%, covering approximately 125,600 urban poor people (TKPKD, 2012).The numbers of households living in substandard houses with substandard infrastructure provision are found to be 36,933 households distributed in the five districts of Banjarsari (12.136 hh); Laweyan (5,204 hh); Serengan (3,398 hh); Pasar Kliwon (6,202 hh) and Jebres (9,993 hh) (BPS, 2011). Of these numbers of household, 1571 of them live in squatter settlements on government land and illegal land such as railway land and riverbank areas. The maps of Surakarta can be seen in Figure 1.



Figure1. Maps of Surakarta, Central Java, Indonesia

Kelurahan Sangkrah, in *Kecamatan Pasar Kliwon* was selected as a pilot project area for implementation of SANIMAS in Surakarta. The specific area consists of four RT (*Rukun Tetangga*, Neighborhood unit), namely RT 3 and RT 4 in RW 8, and RT 3 and RT 4 in RW 9. These areas are particularly densely populated slums having substandard sanitation facilities. Along with the construction, it was also hoped that the attitude toward public facilities would be better as the development used a community-based approach. The research aimed firstly to identify the process of implementation of Sanimas Program and, secondly, to identify the organizational networks developed during the implementation.

Research Methods

The research was conducted through a qualitative method using an inductive approach. The purpose of the study was to identify the process of Sanimas and the institutional networks of the Program. Aiming to identify the process of Sanimas, in-depth interviews were used as the main method of data collection. Interviews were addressed to several government institutions involved in Sanimas in Surakarta as follows: Planning and Development Board (*Badan Perencanaan Pembangunan Daerah, Bappeda*) of Surakarta, Board of Community Empowerment (*Badan Pemberdayaan Masyarakat, Bapermas*); Consortium of NGOs; and Department of Public Works. In-depth interview on the implementation of Sanimas was addressed to the head of KSM in *Kelurahan Sangkrah*. Documents on Sanimas' implementation records were also collected to examine Sanimas' implementation thoroughly. Data were then analyzed in two steps using content analysis from the documents and the interview transcripts to identify the process. Another step of analysis then was added to identify the networks of the institution. Networks were examined using Goodman's indicators, i.e (1) the role of KSM, (2) size or number of linkages, (3) relationships among institutions, and (4) social hierarchies among institutions. The technique of data identification and analysis can be seen in Tabel 1.

Tabel 1. Technique of Data Identification and Analysis

Variables	Sources of Data	Techniques	Technique of Analysis
The role of KSM	- Pokja Sanimas	- Interview	Content analysis
	- Bapermas	- survey	
	- Bappeda	- Literature review	Descriptive
Size or number of linkages		- Review of Document	
	- Department of Public Works	- Interview survey	
	- Bapermas	- Literature review	
	- KSM Kelurahan Sangkrah,	- Review of Document	
Relationships among institutions	- Department of Public Works	- Interview survey	
	- Bapermas	- Literature review	
	- KSM Kelurahan Sangkrah,	- Review of Document	
Sosial hirarchies among institutions	- Department of Public Works	- Interview survey	
	- Bapermas	- Literature review	
	- BAPPEDA	- review	
	- KSM Kelurahan Sangkrah,	- Review of Document	

RESULTS AND DISCUSSION

Process and Mechanism of Sanimas Implementation

The process of the Sanimas program can be classified into two stages, preparation stage and implementation stage.

Preparation Stage

1. Socialization of Sanimas Program by LPTP DEWATS and BORDA as the Non-government Organization in charge of the Sanimas to the Local Government of Surakarta City in 2005, through the Department of Public Works. This was followed by a feasibility survey of the location according to the criteria, which was conducted by LPTP DEWATS.
2. Location selection resulted in Sanimas implementation in two locations in Surakarta; one of the locations is Kelurahan Sangkrah. There were six alternative locations in Kelurahan Sangkrah short-listed and examined.
3. Verification survey by DPU (Public Works Local Institution) of these six alternatives resulted in selection of RW 8 as the target area for Sanimas implementation. LPTP DEWAT would facilitate and empower the community through the whole process.

Implementation Stage

1. A community forum was held to formulate KSM, named Insan Harapan. The forum consisted of beneficiaries and LPTP DEWATS. The KSM was developed as representative of the community who then communicated with the local government and other parties. KSM was led by the Lurah (the chief of the Kelurahan) and formalized with a Decision Letter.
2. LPTP DEWATS, the local government of Surakarta and KSM Insan Harapan Sangkrah signed a Memorandum of Understanding (MoU). The MoU held the detail of Sanimas including detailed construction budget and community contract. Total budget received from National Public Budget (APBN) was Rp 100 million in the form of building materials, BORDA granted Rp 24 million, and a small budgets was allocated from the Municipality annual budget. This program also generated self-help activities in the form of fund and non-fund of total Rp 9 million. The MoU was followed by community-based planning and self-helped construction of public toilets. LPTP DEWATS assisted and facilitated knowledge exchange and construction design, whereas the SKPD Public Works took the monitoring role of the program. As a consequence of the MoU signed between the Municipal Government, NGOs and Rotary Club, public toilets were provided. AusAid funding provided for extension of waste water connection to poor households.
3. KSM prepared the community action plan. Eventhough the technical construction and budget allocation plan of public toilet and communal IPAL have been design by LPTP DEWATS, the community has been asked for some ideas related to design. Basically, the community does not have capacity for

- technical construction and design. The community has only been involved for giving legitimacy to the design before being applied to the area. The process was therefore followed by preparation of implementation by the Department of Public Works. After having approvals from the Department of Public Works, the budget allocation could be distributed.
4. Public toilet and communal IPAL were being constructed with technical expertise from LPTP DEWATS. The community was basically not technically involved in the construction stage, because of all the technical experts provided by the program. The community through the KSM has only been involved in program monitoring. Construction of Public toilet and communal IPAL has been fitted to the Detailed Engineering Design. The construction process of public toilet and the result can be seen in figure 2.
 5. Accountability report was reported by LPTP DEWATS and KSM to the Government of Surakarta related to utilization of funding. LPTP DEWATS facilitated technical assistance during the one year implementation of the Program in order to maintain the function of the public toilet and communal IPAL in case of any damage or malfunction of the public toilet and communal IPAL. After one year of implementation, the maintenance was transferred to the community. Therefore, even though the approach of the program is that of a community-based program, in its implementation the community does not fully participated in preparation of the proposal as well as in technical construction activities. Most implementation of the program was dominated by the LPTP DEWATS. The BORDA has a role in conducting chemical quality testing of the waste after the process of communal waste water treatment.
 6. After completing the program, the sustainability was indicated from the institutional networks developed during the implementation of the program. The Memorandum of Understanding (MoU) between KSM Insan Harapan and PDAM (Local Corporation for Water Supply) provided for a waste water pump. Several training and community capacity building exercises have been done such as socialisation of healthy life to the community. Department of Public Works was conducting tests of sedimentation indicators. The community through a sub-KSM division for its operation has responsibility for maintenance of the program results.
 7. Several visiting guests from other parties to the Area have endorsed that the implementation of Sanimas in Kelurahan Sangkrah has been a success. The KSM Insan Harapan has been commended as the best KSM in Surakarta.
 8. Sustainability of the program is indicated from the neighborhood planning called *Musrenbangkel*, which is allocating some budget for maintenance. Some programs such as National Program of Community Empowerment (PNPM) has directed the program to Kelurahan Sangkrah for the construction of new public toilets in 2013 (Figure 2). The KSM has also prepared a proposal to the Department of Public Works for an Urban Sanitation Program called USRI.



Figure 2. Construction of Public toilet and results of the Construction of Public toilet
Sources : Astuti, 2012 and KSM Kelurahan Sangkrah, 2012



Figure 3. Visitation of BORDA, the Mayor of Surakarta and ISSDP to Sangkrah
Sources : KSM Kelurahan Sangkrah, 2012

The Features of Inter-organizational Networks in Sanimas

As one of the important aspects in a community-based approach, the institutional aspect affects the chances of the sustainability of Sanimas' output. Sustainability promises to be high when there is better institutional capacity to manage the output of Sanimas. In this research, the institutional aspect was assessed based on four indicators, namely the role of KSM, the size or number of the linkages related to the community after Sanimas had been implemented, the relationship among institutions related to Sanimas, and the social hierarchies among institutions. These three aspects were derived from a community capacity measurement tool (Goodman et al, 1998). Tabel 2 below shows the summary of findings in this study on the institutional aspect.

Tabel 2. Interorganizational Networks and Institutional Aspects of Sanimas

Indicator	Findings
The role of KSM	Mediating local government and community Facilitating community to express their ideas on the program Monitoring the implementation of the program through the

Indicator	Findings
	division of operation.
The linkage of the community	<p>Three linkages to non-governmental institution had been developed during implementation of the Sanimas Program with LPTP DEWATs, BORDA and Rotary Club. LPTP DEWATs has linkage to the community during implementation of the program as technical expert until one year after implementation. This has a role for capacity building to the community in the construction stage. Rotary Club has only been involved as source of grants for construction of Public Toilet</p> <p>Two linkages to local government bodies were indicated, firstly the Department of Public Works as an owner of the Sanimas Program and secondly with Bureau of Planning and Development as coordinating body</p> <p>Three indirect linkages to higher level government and foreign agency were identified, firstly with DEWATS as technical expert on the concept of Community Based Sanitation, in charge of design and construction of Communal Waste Water Treatment (IPAL), secondly with Rotary Club, who distributed a donation and grant for construction of public toilet, and thirdly AusAid as the owner of the Program</p>
Relationship among institutions	<p>Group 1. Direct, strong relationship, lasting until now</p> <p>It was found that at least two institutions have strong relationships with the community. These were Department of Public Works and the Bureau of Planning and Development. Relationships have continued until recently. The KSM has proposed the continued sanitation program called USRI (Urban Sanitation and Rural Infrastructure) to the Department of Public Works for the year of 2013.</p> <p>Group 2. Direct , strong relationship, ended when Sanimas was over</p> <p>Some institutions such as LPTP DEWATS and BORDA had strong relationships during implementation of Sanimas. LPTP DEWATS and Department of Public Work signed the MoU for implementation of Sanimas in Kelurahan Sangkrah. After the one year implementation of the program their relationships are over.</p> <p>Group 3. Indirect, rather weak relationship, ended when Sanimas was over.</p> <p>Rotary club had a weak relationship and ended when Sanimas Program was over.</p>
Social hierarchies among institution	<p>Sanimas Program had a hierarchical institution from the National levels (Department of Public works), Provincial levels (Department of Cipta Karya), and City levels (Bappeda). Whereas, in the community levels the LPTD DEWATS has highly connectivity with the community and the KSM</p>

Sources : Analysis, Astuti 2012

The Role of KSM

On the first indicator, it was shown that the community itself had already learned to organize and identify their potential. KSM as the community-based organization were succeeding to encourage and facilitate community members to participate in the Sanimas process. Eventhough the preparation of the proposal for budget allocation and the technical experts have been provided by LPTP DEWATS, the community has been involved in a community forum to give their aspirations related to direction, orientation and numbers of the public toilets. Some committe members of KSM in its division of operation have also been involved in maintenance of the program. The model of Sanimas Program ha been replicated to other areas in Surakarta.

The Linkages of the Community

Based on the number of the linkages during the stages of Sanimas, the community had started to access the decision-making at higher levels. Sanimas created links from local level to global agency. These links then brought opportunities to keep contacts until recently. Three linkages to non-government institution were to LPTD DEWATS which has a role for technical expertize in the construction of Public toilet and communal IPAL, and to AusAid (waspola) as the funding agency in cooperation with the World Bank and BORDA. Some linkages had been strong until recently, such as linkage with BAPPEDA and DPU. Another linkagehas ended when Sanimas was over.

Relationship among Network Members

The relationship among network members shows 3 groups of relationships: Group 1. Direct, strong relationship, lasted until now, which relates to the government institution; Groups 2. Direct, strong relationship, ended when Sanimas was over, which applies to the NGOs in implementation of the Program; and Group 2. Indirect, rather weak relationship, ended when Sanimas was over, which relates to the NGOs as sources of funding for the program. The relationship among network members can be seen in Figure 4.

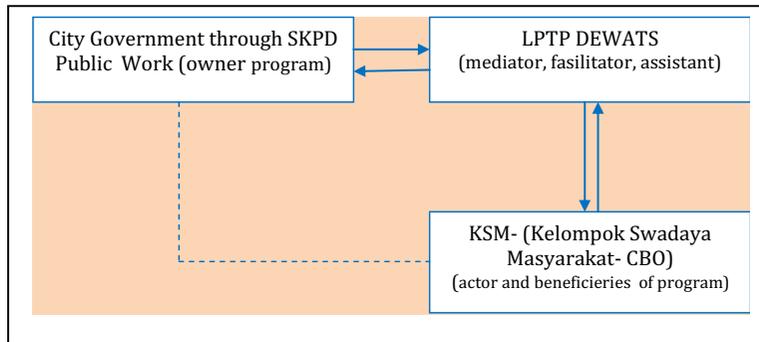


Figure4. Relationship among Network Members

Sources :Astuti, 2012

Social Hierarchy among Networks

Social hierarchy within networks is indicated in the National level, Provincial level, municipal level and community level. At the Municipal levels, success was based on the concept of Community-based Sanitation (Sanimas) and incorporated a community action plan into the annual municipal budget plan. Some MoUs were initiated with external institutions such as Rotary Club for provision of public toilets. The community has to maintain the sustainability of the public toilet and wastafel. The municipal government has also signed MoUs with LPTP DEWATS through the Department of Public Works for technical expertise and assistance and BORDA for testing the quality of waste. The community as beneficiaries has only been involved in giving legitimation to the construction design of Communal IPAL and maintenance. In the National Level (policy level), the project was conducted by the Department of Public works in cooperation with BORDA as the NGO at the National level. Whereas at the provincial level, the Department of Cipta Karya invited all the local governments for socialization of the program. At the community levels, the LPTD DEWATS had high connectivity with the community and the KSM.

CONCLUSIONS

Community-based Sanitation Program (SANIMAS) is formulated not only for the purpose of increasing quality of environment in the dense and poor populated slums area, but also for empowering the community in conducting the program through development of KSM. The role of KSM as mediating agent between the community and the government and other parties has created interorganizational networks. In terms of the linkage of the community through KSM, the community has started to access the decision making in the levels of local, national to foreign agencies. Relationships among institutions have developed during the process of implementation, with some institutions maintaining relationships until recently. The relationships continue to other areas for replication of the Sanimas Program. Social

hierarchies among institutions have been developed in the National level, Provincial level as well as local level. Inter-organizational networks developed during implementation of the program have increased community capacity, widening the networks in the society, empowering people, which then increases the access of the community to sanitation and clean water resources. In turn, this will improve the Water Poverty index while helping the community to escape from poverty.

ACKNOWLEDGMENT

Directorate General of Higher Education (DIKTI) Indonesia for full financial support to this research; Rector; and Head of LPPM Sebelas Maret University; Head of BAPPEDA; Head of SKPD Public Works; Head of Kelurahan Sangkrah; Head of KSM Insan Harapan Kelurahan Sangkrah. Also research team: Diah Widi Astuti, Isti Andini, Habibah, Diyah Setiyani, Hanung, Daniel P, Dedy syarifudin; Arif fakih and all parties which cannot be mentioned here one by one

REFERENCES

- Biro pusat Statistik (2011), Statistik Kota Surakarta 2011.
- Degennes, A and Forse, M. (1999), *Introducing Social Networks*, Sage Publications, London, Thousand oaks, New Delhi.
- Goodman, R. (1998), *Identifying and Defining the Dimensions of Community Capacity to Provide a Basis for Measurement*, Health Education Behaviour 1998; 25; 258 Published by: Sage Publications <http://www.sagepublications.com>.
- Lawrence, P., Meigh, J., and Sullivan, C. (2002), *the Water Poverty Index: an International Compariso*, Keele Economic Research Paper p 12.
- Moser, C., Gatehouse, M., and Garcia, H. (1996), UNDP/UNCHS. (Habitat)/World Bank *.Urban Management And Poverty Reduction Urban Poverty Research Sourcebook Module II: Indicators Of Urban Poverty*.
- Silas, J. (2005), *Productive Houses in Social and Empowerment Dimension*, Surabaya, Laboratory of Human Settlements Architecture Department ITS .
- Silvey, R., Elmhirst, R., (2003), *Engendering Social Capital: Women Workers and Rural-Urban Networks in Indonesia's Crisis*, World Development Vol. 31, No. 5, pp. 865-879, 2003, Elsevier Science Ltd, Great Britain.
- TKPKD (2012), Tugas Besar TKPKD. *Article in Solopos 19 December 2011*
- Turner, Bertha. (eds) (1987), *Building Community*, A third World Case Book- A summary of the habitat International Coalition Non-Governmental Organization's Project for the international Year of Shelter of the Homeless, In association with Habitat Forum, Berlin.
- UN_Habitat, Global Observatory (2003), *UN Habitat Report, Guide to Monitoring target 11: Improving the lives of 100 million slum dwellers*.

- Water and Sanitation Program (WSP) (2008), *Dampak Ekonomi Sanitasi di Indonesia- Studi yang dilakukan di Kamboja, Indonesia, Lao PDR, Filipina, dan Vietnam*, Economic of Sanitation Initiative (ESI).
- Water and Sanitation program WSP (2011), *Lessons in Urban Sanitation Development- Indonesia Sanitation Sector Development 2006-2010*.