PARTICIPATORY MONITORING OF SANITATION: THE CASE OF WOTAWATI HAMLET, PUCUNG – INDONESIA

Kumala Sari,
Pradipta Paramitha,
Jakarta, Indonesia

Introduction

In September 2000, the villagers of Wotawati evaluated their water supply and sanitation service using a new methodology, the MPA, together with the participants of an international workshop on this methodology[1]. In 2003, they investigated what has happened in the community three years after the first study. The methodology was the same, but this time focused only on environmental sanitation in its narrow sense of the replacement of open air defecation by the installation and use of latrines.

Characteristics of Wotawati

Wotawati is a hamlet in Pucung village in Daerah Istimewa Yogyakarta Province. It has 78 households with a total population of 294 people. Its location is quite isolated. It lies away from the main village road and to reach it one must climb a steep path (Fig. 1).

Fig 1. The road to Wotawati

Fig. 2 Settlement pattern

The houses are grouped together and are surrounded by farms and plantations (Fig. 2). The means of livelihood are dry land agriculture and cattle farming. The main crops are rice, vegetables, cassava and corn. Cows, goats and chickens are the livestock.

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[1] The MPA allows villagers to quantify qualitative participatory learning. The database allows comparison over time and between communities at the program level. See: Mukherjee, Nilanjana and van Wijk, Christine (eds.) (2003). *Methodology for Participatory Assessments: Helping Communities Achieve More Sustainable and Equitable Services*. Jakarta, Water and Sanitation Program-East Asia and the Pacific. http://www.wsp.org/pdfs/mpa%202003.pdf

To determine local socio-economic differences, community women and men carried out a household welfare classification with participatory tools. The outcomes showed that 20 households (26%) belonged to the category of the locally better off, 45 households (58%) belonged to the local middle class and 13 households (17%) were poor. They used this information to draw a map which linked socio-economic conditions with local water supply and excreta disposal conditions (Fig. 3 and 4).

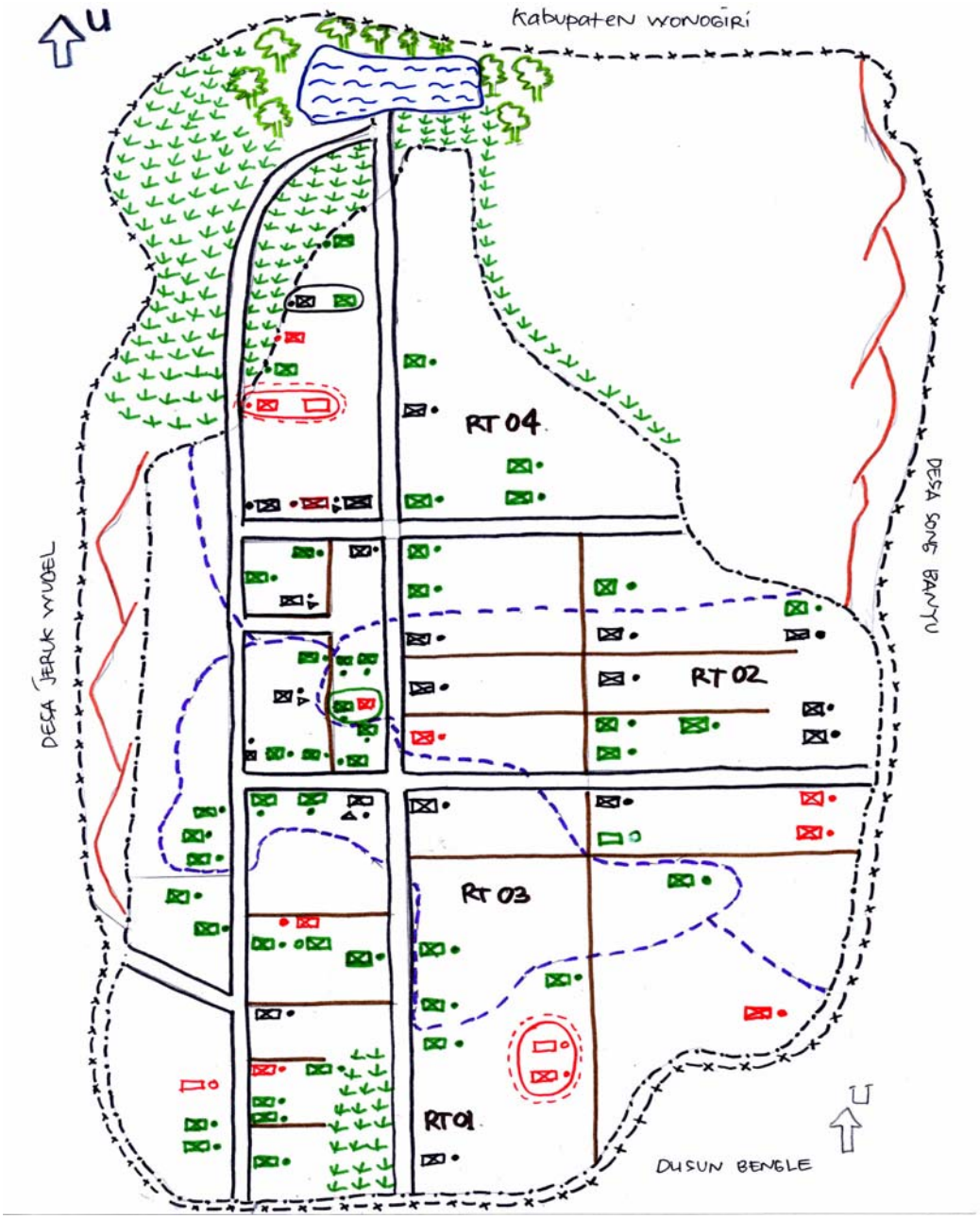

Fig 3 Copy of the villagers' map of Wotawati [2]

[2] Houses in red belong to locally poor people, green to middle class families and black to locally well off. In houses without a cross, all family members have migrated. The dots behind the houses indicate latrines.

In the last five years, the proportion of poor households in Wotawati has dropped. Table 1 shows the change between 2000 and 2003. When over half of the villagers began to work in Jakarta and other big cities, many poor households could improve their prosperity and moved to the middle class. Those living in the houses are mostly elderly people and children.

Fig. 4 Mapping sanitation in 2000 and 2003

Table 1: Self-classification into socio-economic categories, 2000 and 2003

Number and % of households belonging to	2000	2003
Locally best-off	6 (8%)	20 (25%)
Local middle classes	35 (44%)	46 (58%)
Local poor	38 (48%)	14 (18%)
Total	79 (100%)	80 (100%)[3]

Sanitation Development History

From 1995 to 2000, PLAN International had a Family and Children Prosperity (PKAK) Programme in Pucung. Under the programmes, a number of families of school age children received aid to get out of the poverty trap. Participating families received general aid for four years and aid focused especially on children for two years. In Wotawati, five groups of ten households received support on a rotational basis. PLAN choose a local man as facilitator. He did a household inventory, organized a village needs assessment and helped the households form five smaller groups and choose their own group leaders. Each year, every group could get two packages for healthy homes, two goats, two heads of cattle, and materials and help from a trained villager to build two latrines and two rainwater storage tanks for domestic use. Only the poorer villages could get this full range of support packages based on their identified needs; less poor areas would get less support. Over the years, the groups would discuss who would get what and divide the available aid between their members.

In 2000, 58 out of the 79 families, or 73% had a latrine. Fifty of them were direct pit latrines with a concrete slab such as the one in Fig. 4, while eight had a ceramic pan (Fig. 5). All were

[3] 100% after rounding off

flushed by water carried in buckets. Forty families got their latrine under the PKAK programme. The other 18 families installed them with private means. Using their class-specific map, the villagers analysed in 2000 how the latrines were divided over the three welfare groups. The analysis revealed that the program had improved latrine ownership, but that not all poor families had benefited (Table 2).

Fig. 5 Pit latrine with concrete slab

Fig. 6 Pit latrine with ceramic pan

Table 2: Outcome of participatory mapping of household latrines in 2000

Welfare level	Households		Total
	with a latrine	without latrine	
Best-off	6 (100%)	0 (0%)	6 (100%)
Middle class	23 (66%)	12 (34%)	35 (100%)
Poor	29 (76%)	9 (24%)	38 (100%)
Total	58 (73%)	21 (27%)	79 (100%)

Change in Defecation Habits

Before the PKAK programme of PLAN started, only a few people owned a latrine. Those who owned a latrine were rich families. Most of the community defecated anywhere around the housing area. There was an agreement between the villagers that the areas used for defecation should be outside the housing areas, e.g., a plantation or a field in which the local farmers had not yet planted any crop.

With the arrival of the rotational support, more families began to build their own latrine. The programme led to a new agreement in the village that those who have a latrine have to use it for defecation and can no longer do it wherever they like. The only exception is when one is working in a field far from home, because it is impossible to go home and the smell will not reach the housing area.

The shift from open area defecation to the use of latrines took only some three months. The adjustment was relatively fast because people did not experience the move from using a dry open area to using a dry latrine as a difficult change. The rapid change was also influenced by other factors:

- The existence of a cholera epidemic in the hamlet, and the advice from the local doctor for people to stop defecating everywhere;
- The existence of a local agreement to use the latrines and no longer defecate in other places. This agreement created an extra bond between household in this closely knit community which facilitated latrine sharing until a household had built its own.
- Consciousness of the community to keep the environment clean. This was based on the experience that in dry season the village surroundings were polluted by excrements which caused a bad smell in the housing area. In the rainy season, the excrements could be seen everywhere along the path to the plantation.
- There is a tradition of mutual help in the village. When a family builds its latrine, the neighbours help with the construction. One of the reasons why they then use it is that they would feel guilty towards their neighbours if they did not use it afterwards.
- When household members who had migrated during the labour season came home, they set an example by using the family's latrine.
- The construction of rainwater storage tanks. For families who already had a rainwater tank before building their latrine, it was easier to change their habits and begin to use the latrine because of the availability of water for flushing and to clean oneself with soap after defecation.

The women found it easiest to change their habits from outside defecation to using a latrine. They had had great difficulties in defecating far from home, especially at night. They were also motivated by wanting to improve life for their children. The groups whose defecation habits were hardest to change were the senior villagers and the children under 5 years of age. Grandparents were used to defecate in an open space, while children were still learning to know what latrine is.

At this moment, when the empty houses are not counted, latrine ownership in the village is 93% (Table 3). All members of these families consistently use a latrine. However, overall latrine use in Wotawati is already 100%, because the remaining six families use the latrine of their children, parents or other relatives whose house is next to theirs.

Table 3: Outcome of participatory mapping of household latrines in 2003

Welfare level	Households		Total
	with a latrine	without latrine	
Best-off	20 (100%)	0 (0%)	20 (100%)
Middle class	44 (96%)	2 (4%)	46 (100%)
Poor	10 (71%)	4 (29%)	14 (100%)
Total	74 (93%)	6 (7%)	80 (100%)

Technology Choices

At the start of the latrine programme, the households got information about the types of latrines that they could install. The PLAN field worker gave the information separately to the men's groups and the women's groups, because the two types of groups have different routines for gathering. They could choose from three models:

- A direct dry pit latrine. This is a slab with a hole directly over the pit.
- An off-set dry pit latrine. This is a dry latrine with a slab and a hole connected by a pipe to a pit in a different place.
- A pour-flush latrine. This is a wet latrine with a slab and a ceramic pan connected by a pipe to a pit in a different place.

Most people opted for dry pit latrines for several reasons:

- The hamlet is located in a dry area and due to a shortage of water sources the families depend on rainwater. After the construction of rainwater storage tanks, the groups still wanted a latrine type that requires only a limited amount of water.
- The average economic conditions of the community made it more realistic to build direct dry pit latrines than pour-flush latrines. The latter are more expensive and it is harder to get the ceramic pan and water seal.
- The people are used to defecate in any possible dry area, so it seemed easier to use also a dry latrine.

After the families had made their choice, the PLAN facilitator gave technical support on how to build the latrine. The underground pit and platform are more or less the same for every latrine. The pit is lined with rocks, which can easily be found around the village, and which are stacked around the walls of the pit without cement. The diameter of the pit is adjusted to the number of family members living in the household. The latrine slab is generally made from cement plaster with a hole in the centre and is connected by a pipe to the pit. The type of walls and roof depends on how much a family can afford and wants to spend. Rich families build the walls with concrete bricks while poor families prefer walls made of bamboo (Figs. 6 and 7).

Fig. 7 Bamboo outhouse

Fig. 8 Brick outhouse

In the last five years, there is an improvement in latrine structures. Most usual is that the families build a better outhouse. If in the past they built only rock walls, they now build concrete brick walls.

Almost all the latrines are dry pit latrines. Only the richer families own pour-flush latrines, because they have more or larger rainwater harvesting tanks. Even they have built the new pour-flush latrine next to the dry latrine and use the flush latrine only in the rainy season, when there is plenty of rainwater. The preferred place for the latrines is behind the house, usually near the pen for the livestock, so that the "dirty places " are all in the same area.

Willingness to Pay for Latrine Development

Under its family aid programme, PLAN provided each household with 1 bag of cement, 1 iron bar, 500 concrete bricks, 125 roofing tiles, connection pipes and 1,5 m^3 sand. The total value was Rp. 241.000,- (in 2000 price) or € 23,2[4]. Families who built a latrine privately or after the year 2000 did not get external material support.

The households did all the work themselves: dig the holes, collect rocks, line the pits, collect water to mix the cement for the slabs, cast and cure the concrete, build the outhouses in bamboo or brick, and provide food for the workers. The families did all work themselves together with their relatives and neighbours. They did not spend any money on paying wages, but sometimes decided to buy additional materials.

Willingness and ability to invest extra money in a latrine depended on the family's economic conditions and the chosen model. The amount of work and money spent on the underground structures and the platforms was much the same. The differences came with the types of outhouses as for brick walls extra investments were needed..

Usually, the money for building a latrine did not come from the household's daily income. The majority of the households, especially in the poorer groups, sold some belongings before buying the needed materials. They sold goats, grain stock or jewellery which they

[4] *1 euro = Rp 10.375 per December 12, 2003*

used as family savings. The extremely poor and the elderly, who had fewer resources to build a latrine, were helped by their relatives or neighbours.

Gender Roles in the Latrine Programme

In the households in Wotawati, the men provide the main family income and the women manage the family budget. It is common for the men to give their incomes to their wives. Within the households, the women had the need to own a latrine and they convinced their husband and other male relatives of its value for the family. Women could "push" the men to build a household latrine as their position as the family's financial manager made it possible for them to allocate resources for its construction.

The aid was given at the village level. Here, the men were in charge. They decided on the distribution of the latrine materials, the technology options and the development process. Even so, they invited the women to the village meetings in which the latrine programme was discussed. During construction, the men did the physical work and the women bought the ingredients and prepared the refreshments. The latter was a valuable part of the process since help for construction was not paid. Refreshments were provided under the understanding that they would not be luxurious, but simply serve as an expression of gratitude to whoever was involved in the constriction work.

Access to Water for Latrine Construction and Use

Wotawati is located in an area with dry lime hills. It has maximally six months of rainfall per year. The only nearby source of clean water is water from rainwater storage tanks. Tanks used to draw water for drinking and cooking are closed structures, while tanks storing rainwater for washing and bathing are open (Figs. 9 and 10).

Fig. 9 Closed rainwater storage tank

Fig. 10 Open Reservoir with loose cover and bathroom with drainage

In the rainy season, the households use the rainwater from the storage tanks for drinking, cooking, washing, bathing, watering the livestock and cleaning the latrines. There is then enough water for basic hygiene. In the dry season, there is a water shortage and they use water from the storage tanks only for drinking, cooking and washing household utensils. Bathing, washing clothes and watering livestock are then done at a pond at about one km from the village. This is also the source from where the women bring water for use in the latrine and for domestic hygiene (Fig. 11).

Fig. 11 Washing and bathing in the village pond

In 2000, all rich and middle-class families had a rainwater tank or tanks attached to their houses. Of the poor households, only 77% had a tank. Poor families who did not have a rain water tank usually used the ones owned by nearby living parents, children or other relatives.

When in the dry season the households run out of water from the storage tanks, they have to buy water. One storage tank filled with 5000 litre water serves one household of eight family members for one month with water fro drinking, cooking and dishwashing. In Wotawati, filling a 5000 litre tank with water cost Rp. 70.000 – 90.000, or € 7-9,5 while outside the hamlet the price is only Rp. 60.000 (€ 6,3). The seasonal water shortage affects especially the domestic hygiene of poorer families, who have no tank or tanks of their own.

Benefits from sanitation and monitoring

Using a rating scale, the villagers ranked the benefits of the household latrines in order of importance. The results, in Table 2, show that hygiene, health, convenience, cost savings and meeting social norms all scored equally high (10 out of 10). Safety and clean habits of children came as close second and thirds.

Table 4: Experienced benefits of household latrines

No	Benefits	Score
1.	Better health and no more skin irritation because they used to clean up after defecating by rubbing their hands with rocks. Now they wash their hands with water and most of them already use soap.	10
2.	Nearness of a place to defecate. Previously they had to go outside the housing area.	10
3.	The environment is clean. There are no more excreta especially along the path to the fields	10
4.	The environment is odourless. The wind no longer carries the bad smell of human excreta from the plantations to the housing area.	10
5.	Electricity can be used to light the latrine at night. This saves batteries and kerosene.	10
6.	They are no longer afraid of being bitten by snakes, centipedes and scorpions.	10
7.	People do no longer need to be ashamed of defecating anywhere.	10
8.	The latrines prevent spreading of diseases such as diarrhoea, vomiting and cholera	10
9.	They no longer fear to go out for defecation at night.	9
10.	No need to be escorted to defecate at night	8
11.	Children defecate in latrines. They no longer defecate anywhere in garbage dump or cattle pen	8

Another more indirect benefit is an environment free from dogs' excreta. When the programme began, a large number of wild dogs wandered around the houses. They were tolerated because they ate human excreta, mostly from children and babies, which were left or thrown in the yard. All villagers, grown-ups as well as children now use the latrines. Baby excreta are also thrown into the latrines. The environment is free from human excreta, but is still polluted by the excreta of wild dogs. During the discussions of the data the villagers decided that wild dogs would no longer be allowed to roam the hamlet, so that the environment will be free from all excreta, include those of dogs.

At the time of the second study, the people of Wotawati remembered the first study well. It had been a big activity, with foreigners, that involved everyone in the hamlet in social mapping, pocket voting, and a transect walk. However, the biggest lesson that they mentioned was what they learned from the process, because they could openly express their experiences and initiatives.

The families in Wotawati greatly valued the project and the local facilitator who helped organize and implement it. When the project ended, they chose him as the next village chief.

Conclusions

Started off by the NGO Plan International, the families of Wotawati, a poor village on the outskirts of the main community of Pucung, realised at least one of their own Millennium Development Goals. They not only cut the number of households without basic sanitation by half, but achieved almost 100% latrine coverage and 100% use. Neither their isolated location nor their lack of a reliable water supply
Other conclusions are:

- Although subsidies went to individual households, the programme was managed by the community, with complementary roles and influence of women and men;
- The villagers changed open defecation for easy to clean and generally used latrines with little more inputs than a gender-based information and consultation approach linked to their own organization and management system;
- A combination of peer support and peer pressure along with a perception of many benefits - social, economic, hygiene, health - were strong motivating factors;
- An informed choice of technology made the villagers opt for dry latrines in a culture for which outsiders often assume that pour flush latrines are the most appropriate. Their choice meant that less water was needed to keep the latrines clean and women and children needed to collect less water collection for flushing;
- Not all subsidies benefited only poor households;
- Participatory methods of local welfare classification and a stratified village sanitation maps would have helped a more transparent allocation and accountability;
- When the subsidies ended, the programme continued. It depended less on subsidies than on information, communication, cooperation and gender and peer-based pressure;
- Stratified village maps based on the villagers' own definitions of poverty are excellent monitoring tools for community-managed sanitation improvements.


DATA DASAR DUSUN VOTAWATT TAHUN 9