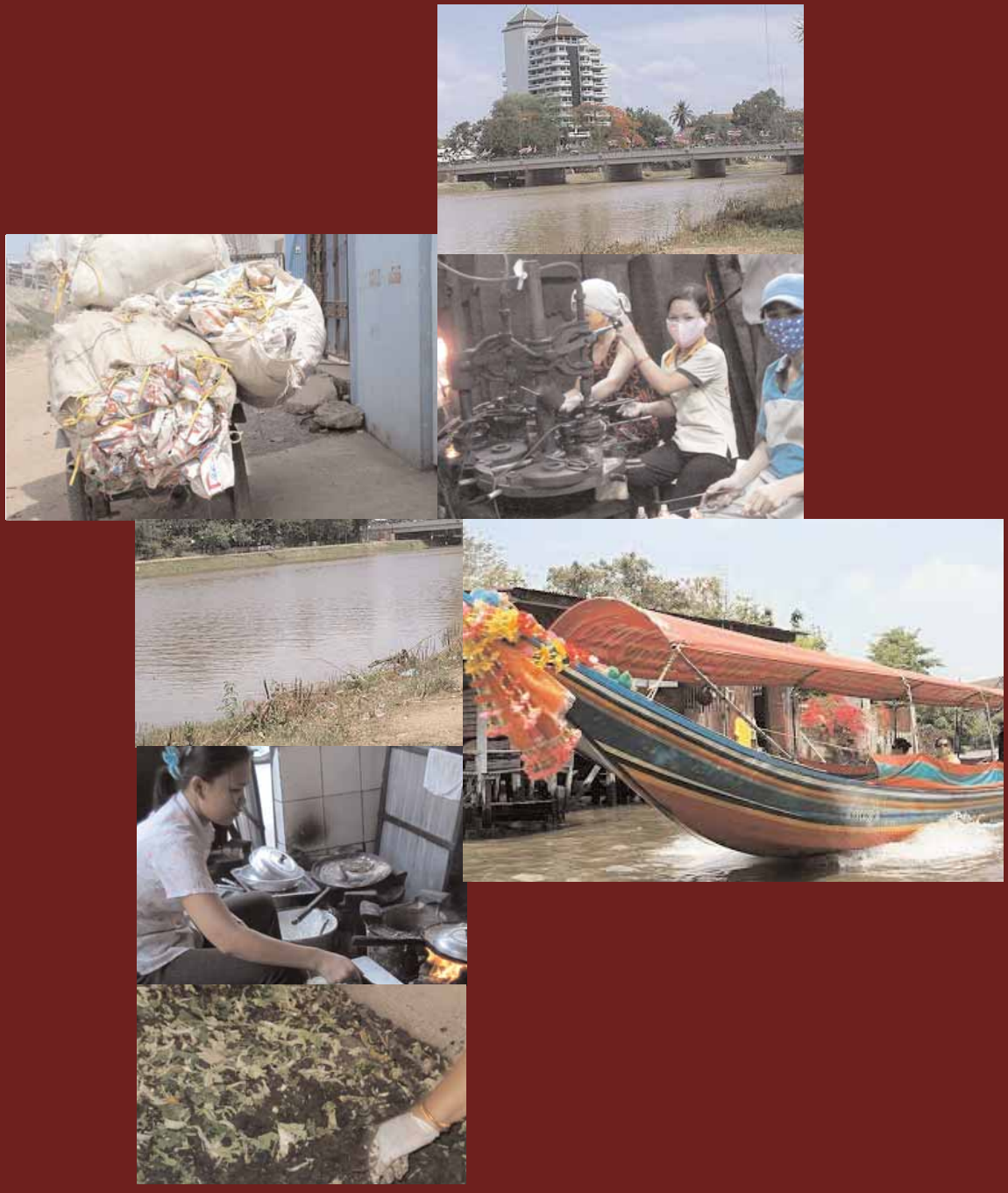

Gender Equality in Urban Environmental Management
A Casebook

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Canada

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Preface

The Southeast Asia Urban Environmental Management Application (SEA-UEMA) Project 2003-2010 is a partnership program project between Canadian International Development Agency (CIDA) and the Asian Institute of Technology (AIT) that aims to improve urban environmental conditions in Southeast Asia. The project seeks to attain improved applications and sharing of sound UEM policies and practices in the key sub-sectors in the region.

Gender equality is a cross-cutting theme of SEA-UEMA Project. The project has been promoting the concept of gender equality in all its events, workshops as well as in field-level research and applications. As part of our effort to address the capacity building needs for gender analysis and incorporating gender perspectives in urban environmental management policies and practices, the SEA-UEMA project developed a gender analysis framework and brought out this Casebook to facilitate the gender integration work of our partners.

The purpose of a Casebook is to assist practitioners in UEM to conduct gender analysis and identify gender issues and develop possible interventions. Each case has been compiled and written by gender experts of the SEA-UEMA Project from each country. The gender analysis framework is aimed to facilitate not only the analysis of projects but also policy analysis and policy development. The Casebook is designed as a self-learning book, so that people who do not have time and opportunity to attend gender training can also learn by going through this book.

I hope that this publication would provide useful tools for UEM practitioners to integrate gender perspectives in their work, and through this, we will be able to promote gender equality through our work in UEM. I would like to thank our national gender experts who have contributed heavily by providing precious case studies, and the gender team of SEA-UEMA for organizing the production of this book.

Edsel Sajor, Ph.D.
Coordinator, UEM FoS and
Director, SEA-UEMA Project (2007-2008)

Acknowledgements

This case book is a result of long process of collaboration between and among national gender experts and SEA-UEMA project. Without their active participation and commitment to advocate for gender equality in UEM, the case book have never been materialized. We would like to acknowledge the gender experts of the SEA-UEMA Project from each country for their contribution in giving ideas, providing useful information and technical reviews of each chapter.

Those who need to be mentioned are Romyen Kosaikanont from Thailand, Hor Sophea from Cambodia, Fe Quanico Salcedo from Philippines, Anny Andaryati from Indonesia, Gabrielle Groves who did the case on Timor Leste, Maureen C. Pagaduan and Romano Antonio V. Wamil from Philippines, Vu Phoung Ly from Vietnam, and Outhaki Choulamany Khamphoui from Lao P.D.R.

We would like to express our deep appreciations to the partners of the SEA-UEMA Project and other UEM practitioners who have provided the opportunity for us to learn from their experiences. Specifically, the project implementers and key informants also deserve a thank you for dedicating their time, facilitating, and sharing information to develop this casebook.

Our special thanks goes to Judith Nietes, Laksiri Chomchuen and Jubaiya Jahan who has worked hard in organizing the production of this case book. We would also like to thank all the staff of SEA-UEMA Project for their support and their suggestions in preparing this book.

Last but not least, the generous support from CIDA is acknowledged with appreciation, for without this support, we would not be able to produce this case book.

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Gender Expert, SEA-UEMA Project

and

Veena N.
Consultant and Editor

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SECTION: 1

INTRODUCTION TO THE CASEBOOK

This casebook is for those who are interested in promoting gender equality in the context of Urban Environmental Management. This has been designed on the premise that sensitivity and willingness to integrate gender perspective does not come through technical training but from keen observation, dedication to the improvement of the lives of people in the community, and from eagerness to listen and understand people without voices. Thus, we would not claim that by studying this publication, one would immediately become gender sensitive. On the contrary, gender sensitivity or willingness to integrate gender will be a prerequisite for the optimum use of this casebook. Fortunately, in the course of implementing the Southeast Asia Urban Environmental Management Applications (SEA-UEMA) Project over the years, we have seen a rapid increase in the number of gender-sensitive practitioners among the many dedicated practitioners in the field of Urban Environmental Management (UEM). Hence, we believe that a casebook of this nature will be useful to this growing number of interested individuals and organizations.

Why should I read this casebook?

This casebook was designed for project managers and field level workers. The cases selected here are basically project-level cases that encourage gender analysis in such field projects, written by gender experts from each country. Identifying gender issues is the first important step to improve gender initiatives in field-level projects. Thus, the casebook is dedicated to improve the capacity of users to conduct gender analysis and identify gender issues, from where they can then design suitable interventions. This casebook has been developed over the years while promoting gender

This casebook has been designed on the premise that sensitivity and willingness to integrate gender perspective does not come through technical training but from keen observation, dedication to the improvement of the lives of people, and from eagerness to listen and understand people without voices.

It is recommended that people who use the casebook go through the analytical framework first, and then proceed with the cases.

equality in SEA-UEMA project. One of the urgent needs identified is that the capacity to identify gender issues is insufficient among people engaged in UEM related projects.

The analysis framework and basic gender analysis perspective, we believe, will be useful for policy advocacy as well. So, this casebook would enable people working in policy advocacy to sharpen their skills in identifying gender issues to be incorporated in their policy advocacy.

How can I use this casebook?

The casebook is designed for self-learning. Ideally, UEM project managers and practitioners would go through a series of gender trainings in order to equip themselves for gender analysis. However, in reality, it is difficult for every practitioner to attend gender training as often as it is required. This casebook is designed for those who do not have time to go through gender training several times, and those who would like to upgrade their skills in gender analysis.

Guide to the casebook

The casebook begins with an explanation of the basic gender analytical framework developed for the specific context of UEM in Southeast Asia. It lays down the concepts and areas of concern in conducting gender analysis, to serve as a guideline when conducting gender analysis.

The subsequent sections are real life case studies from seven countries in Southeast Asia, divided into three sub-sectors — water and sanitation, air pollution and solid waste management. At the end of each case, there are several guiding questions.

It is recommended that people who use the casebook go through the analytical framework first, and then proceed with the cases. The cases are in random order, and it is not necessary to go through them in order. The

It is important to note that gender analysis is a process of discovery and understanding, enroute to the long-term goals of gender equality and women's empowerment.

user may feel free to select the cases that are relevant to the country or the sectoral context. With the analytical framework in mind, the user is encouraged to develop a gender analysis of the case. The user is also encouraged to think about the questions which are placed at the end of each case to assist the user in deepening/widening the analysis.

The last word

It is important to note that gender analysis is a process of discovery and understanding, enroute to the long-term goals of gender equality and women's empowerment. The conceptual gender analysis framework, the cases and guide questions, all lead towards this goal. Providing answers to the questions or giving a model analysis would limit the users, and therefore no answers are provided.

This casebook can also be used by gender trainers, who can reduce the length of the cases to make them more handy for use in trainings.

SECTION: 2

FRAMEWORK FOR ANALYSIS

Gender and Urban Environmental Management in Southeast Asia

A framework for analysis and research needs

Kyoko Kusakabe

Introduction

Urban population in Southeast Asia has been increasing steadily. During the 1980s, urban population comprised only 40 per cent of the total population of the Philippines. This increased to nearly 60 per cent by 2001. Similarly, urban population in Cambodia has doubled from 10 per cent of the country's population in the 1980s to nearly 20 per cent in 2000. Similar increases have been noted in all the nation-states of Southeast Asia. With this rapid increase in urban population, issues relating to urban environment management (UEM) are becoming significantly important.

As workers, housekeepers, mothers and migrants, women experience urbanization and degradation of the urban environment more intimately than men do (Momsen, 2004). Biological differences, gendered division of labor and gender relations all result in a differential impact of the deteriorating urban environment on women and men. Gender differences also lead to discrimination in women's and men's access to urban services. Hence, it is important to understand the different experiences and needs of women and men in urban environment management.

However, there is still little recognition that gender differences and gendered power relations play a large role in UEM. This is manifest in the scanty references to gender issues in urban environment policies and programs in Asia. The importance of including gender perspectives is finally being recognized by many people in the field and at policy levels, but statistics, information and data are still lacking, and few projects adequately recognize and address the problems and challenges in achieving gender equality in the field.

As workers, housewives, mothers and migrants, women experience urbanization and urban degradation more intimately than men do

Gendering projects

Many development projects face similar problems of low gender awareness, lack of capacity for gender analysis, lack of data and statistics to conduct gender analysis, etc. One of the main strategies employed in

gender mainstreaming is to create gender analysis frameworks and gender checklists (Moser and Moser 2005; Levy 1992). There is a felt need among project implementers to learn "how" to "do gender" in projects that is to integrate gender perspective into projects (Warren 2007). Gender analysis frameworks are supposed to help project implementers in "doing gender". So, what is a gender analysis framework? ADB (2003) states that a gender analysis framework is

> "a flexible instrument with the ultimate purpose of assisting in the design and implementation of programs and projects that maximize the productivity and participation of both men and women, and includes appropriate implementation arrangements for strategies, policies, interventions, and projects."

This definition shows that the gender analysis framework is a tool to provide certain ideas and information that serve a particular purpose of the project in question. However, many advocates of gender analysis framework believe that it should be the other way round. Gender analysis frameworks exist not to insert gender into the project, but to reveal different ways of looking at the phenomenon. The ultimate purpose is not to serve the project's productivity but to change the way things are being done and valued to achieve gender equality. As such, Kabeer notes that there is no one correct way of 'doing gender', and

> The main objective of the framework is to draw attention to the processes by which biological difference of sex is translated into social inequalities of gender in different societies. (Kabeer, 1999:11)

These two definitions coming from two different directions are based on different values. As Warren (2007) argued, gender analysis framework is based on values and ideologies and cannot be understood without an understanding of the values that guide the framework. However, when gender analysis frameworks are applied in the field, these two perspectives are not necessarily distinguished. This creates misuse of frameworks because the framework is framed to allow the user to understand the value/ ideology behind the framework.

As the guide to the ideology of gender equality, a gender analysis framework should, to paraphrase Kabeer (1999), not put up a rigid way of looking at things, but (1) introduce a certain value in examining the ways things are done. Gender equality as an important value, equal sharing of work-

Ideally, a gender analysis framework needs to be flexible enough to accommodate contextual differences, and specific enough to capture the nature of the sector in question

load and sharing of decision-making as important values, etc. are often communicated through gender analysis frameworks. (2) Make it easier for non-gender specialists to understand what constitutes gender issues and gender needs in a specific location and sector.

Ideally, a gender analysis framework needs to be flexible enough to accommodate contextual differences, and specific enough to capture the nature of the sector in question. As Fong et. al (1996: 2) state, "Gender analysis can help ensure provision of services that men and women want and that are appropriate to their circumstances". Flexibility here implies not being too vague or too conceptual, which make it difficult for non-gender specialists to follow. Flexibility comes from an understanding of being as inclusive as possible given the contextual differences in each area. Thus, it is very important that the gender analysis framework developed should be context-, location- and sector-specific.

Against this backdrop, this chapter introduces a gender analysis framework that is location-specific i.e. for Southeast Asia, and sector-specific i.e. urban environmental management (UEM), especially focusing on the sub-sectors of water and sanitation, solid waste management and air pollution. In order to set the geographical and sectoral context, this chapter will first present an overview of women's situation in UEM in Southeast Asia, drawing from existing research and statistics. Based on this, it will introduce a gender analysis framework that can be used to identify gender issues in UEM in Southeast Asia, and identify areas where project interventions are needed.

Although there is no gender analysis framework specifically for urban environmental management, there are some relevant gender analysis frameworks, and this framework will be based on them. Guidelines for water and sanitation have been developed by Wendy Wakeman (1995), while ESCAP (2003) developed a series of gender indicators using macro-

economic statistics. There are already well-established and tested frameworks such as Harvard Analytical Framework, Moser's Framework, Gender analysis matrix, Longwe's empowerment framework and Naila Kabeer's social relations approach. This gender analysis framework for UEM in SEA has been developed because:

> "there is no basis for a theoretical discourse on development, gender, and the environment, but only a contextual analysis of the multiple points where development, women, and the environment meet and interact. That is to say, the relationship between women and the environment can be understood only within the institutional contexts in which the two interact and in which development takes place." (Zein-Elabdin, 1996:p.930)

Therefore, for best results, seperate gender analysis frameworks have to be specifically developed for each and every context and issue. Further,

The purpose of developing a gender analysis framework is actually to allow people who are not gender experts to participate in gender analysis

when gender analysis framework is applied in the field during development projects, it is not always done by gender experts. The purpose of developing gender analysis framework is actually to allow non-gender experts to participate in gender analysis. In this sense, there is a need to develop gender analysis frameworks that are as contextualized as possible, even if it is not possible to do it for each and every context.

Urban environmental management is an area that is still relatively new. Literature on women/gender perspective and environment illustrate women's roles, responsibilities and use of natural resources like land, forests and water. Emphasis is on natural resources, and environment is often equated with natural resources. Levy (1992:144) noted "the simplest link in the gender-environment equation is the use by women and men of natural resources", recognizing the systems of production and consumption in which they are operating in a particular context.

In the urban environment context, production and consumption are not direct, they are dependent on others. So, rather than production and

consumption, we need to focus on employment and service provision. The role of the market and state as gate keepers or barriers to employment and service provision can be felt more directly in the urban than in the rural contexts. Therefore, the analytical framework used in gender and environment literature is not directly applicable to the gendered analysis of urban environmental management.

Gender Issues in Urban Environmental Management in Southeast Asia

Water and sanitation

Huynh (2007) noted that 48 per cent of the households in Ho Chi Minh City are affected by flooding. In Dili, East Timor, only 43.8 per cent of the population has access to safe sanitation, and 80 per cent of the children have intestinal parasitic infections and other diseases. Inadequate sewage system leads to mosquito-borne diseases and contaminated well-water (Robertson 2007).

Among the boat-people in Vietnam, both women and men often work in water all day and the polluted water causes serious health problems. Women are more vulnerable because of their reproductive functions and their reproductive health is affected by constant exposure in polluted water.

A gender situation analysis in Metro Manila showed that 33 per cent of the population lives without potable water, and 29 per cent without sanitary toilet facilities (Rivera, 2007). In Dili, only 30 per cent of the households have piped water, and more than 10 per cent fetch water from unprotected sources (Robertson, 2007). Lack of access to potable water is a serious problem in Dili, with 94 per cent of the women ranking access to clean water as the most important need.

In Vietnam's HCMC, people have to buy water from vendors and the monthly water expenditure can go up to 100,000 Vietnamese Dong (VND)[1] (US$ 6.25) (Huynh, 2007). Since a waste picker's daily income is 20,000 - 30,000 VND per day, this water is too expensive for the poor. The gender analysis in Surabaya, Indonesia, showed that only 24.5 per cent of

[1] 16,000 Vietnamese Dong (VND) = 1 US$

Lack of access to urban sanitation services costs women more in terms of health, time and money.

the respondents had piped water connection (Wisjnubroto, 2007). On average, women spent 30 minutes fetching water everyday, with some respondents spending up to 60 minutes.

Lack of access to urban sanitation services costs women more in terms of health, time and money. The financial and time resources needed to source water as well as manage solid waste are often entirely women's burdens due to the traditional gender-based division of labor. Women are often the financial managers of the household, and thus any extra expenditure to buy water makes it more difficult for them to manage their household, leading to extra hours of work and less money for food. In the Philippines, people tend to use contaminated water if the regular drinking water supply is suspended due to non-payment of dues (Rivera-Santander, 2004 in Interagency task force on gender and water, 2004).

As water collectors, women and girls are often affected more in such cases (ibid). In addition to money, health and time, women's physical security is also affected by the lack of urban environmental services. In Surabaya, 66.6 per cent of the respondents were using river banks for toilet and river water for bathing, although such activities led to a sense of insecurity among women (Wisjnubroto, 2007).

Latrines in schools also have gendered impacts, especially among older students. Syphoxay (2005) studied high school students in Vientiane, Laos, and found that 68 per cent of the girls go back home to urinate, while only 36 per cent of the boys do so. This is because the toilets in the school are too filthy to use, and girls feel shy to use toilets in houses near schools. Gender and water website found that girls, particularly after puberty, miss school due to lack of proper sanitation facilities.

Latrines are usually designed by male masons, who are not sensitive to the special needs of girls. Girls' and boys' latrines are sometimes constructed too close to each other. Urinals for small boys are made too high, and they then tend to take over latrines meant for girls. Citing a UNICEF report, the Interagency Task Force on Gender and Water (2004) noted that in Bangladesh, a school sanitation project with separate facilities for boys and girls helped boost girls' school attendance by 11 per cent per year on average from 1992 to 1999.

Women feel the need for sanitation facilities more than men. UNDP

... girls, particularly after puberty, miss school due to lack of proper sanitation facilities. Latrines are usually designed by male masons, who are not sensitive to the needs of girls

(2003:66) also showed that in countries such as Cambodia, Indonesia and Vietnam, women prioritised toilet construction in their own house, and successfully convinced their husbands to build one.

In South Asia, where women are secluded, women are more vulnerable to drowning in the event of floods since the cultural practices require women to always be escorted in public (Parkinson, 2003). Although in Southeast Asia, such seclusion is not practised, women are affected by the aftermath of the flood. Women are affected more by poor drainage and flooding of domestic properties. Parkinson (2003) noted that women's work burden increases for several reasons: (1) economic devastation; (2) disruption of livelihood systems that they have a major role in reconstructing; (3) coping with social and emotional upheaval that comes from dealing with death, disease and food shortages in the aftermath of floods. From South Asia, Bapat and Agarwal (2003) showed in their study in Mumbai and Pune in India that water and sanitation is a stressful and time-consuming challenge, disproportionately, more for women.

In general, the field of water and sanitation in Southeast Asia has seen a focus on rural water (see Wackman, 1995; Interagency Task Force on Gender and Water, 2004; UNDP, 2003), while water and sanitation in urban areas has been given relatively less significance.

Solid waste management

Urban solid waste can be categorized into organic domestic waste, hazardous waste, waste from agriculture and industries, and hospital and other bio-medical waste. Issues of solid waste management range from collection, waste treatment and disposal to recycling. Health risks are high due to contact with human excreta or other raw waste materials. Hepatitis, diarrhea, eye and skin infection are common.

Women and men play different roles in solid waste management. Lack of solid waste management services can create difficulties as well as health hazards for both women and men. In Yogyakarta, Indonesia, solid waste

collection services reach only 25 per cent of the households (Sumiarni and Ayum, 2007). Women tend to suffer more from the lack of services, since they are responsible for the disposal of household waste.

In East Timor, it has been reported that women's role in household waste management exposes them not only to health hazards in accessing open waste dumps, but also poses security risks for them since the waste dump is outside the community, and the road link to the site is not secure[2]. Women and children stay at home for longer hours than men, and in poorer residential areas, home-based women workers are exposed to unsanitary conditions at their home-cum-workplace for longer hours.

Ngamnetr (2005) reported that homeworkers work under unhealthy conditions, including lack of ventilation, excessive heat, exposure to hazardous chemicals and dust, poor waste disposal, and long working hours. HomeNet Thailand has been introducing clean technology to bronze-making homeworkers to improve their working conditions.

It is important that women are involved in solid waste management planning, since they play a large role in managing household waste. In places such as Laos and Thailand, waste is thrown out into the canal, polluting them. Chounlamountry (2007) reported that in communities along the canal in Vientiane, women are more aware of the importance of wastewater management than men (55 per cent women, 46 per cent men).

Among waste workers, women are often the pickers/collectors of waste, while men are usually the transporters[3]. Thus women are more vulnerable to exposure to waste, and hence require improved protection and training in handling waste. Women often have to take their small children when they go waste picking since they do not have any alternate childcare arrangements, exposing children to hazardous environment. Medina (in WIEGO website) noted that in Port Said, Egypt, infant mortality in the waste picker community was several times higher than that in the rest of the region, with one in three live births dying in the first year of life. Muller and

2 Personal communication with Gabrielle Groves.

3 Ibadan City in Nigeria, showed a gender-based division of labor in biomedical waste handling. Women sweep and collect waste, while men transport it. This showed directly handled the biomedical waste, and thus were exposed to higher risks. They were not effectively trained to manage these risks of contamination (Urban Management Programme, 2001).

Schienberg (GDRC website) pointed out that women waste pickers are more vulnerable to insults/ assaults while working in remote sites like waste dumps. Waste from the industry can have more detrimental impact on the health of women as compared to men. In the Philippines, Maramba et al (2006) studied the impact of abandoned mercury mines. They found that hair methyl mercury levels among pregnant women/mothers in the exposed group showed statistically significant results, which will affect both mothers and children.

Air pollution

Air pollution in Asian cities is increasing rapidly. Although everyone is affected by air pollution, children and elders are most vulnerable. There is a rising incidence of respiratory tract infections around the urban world. Nearly 2 million children under 5 years of age die every year from acute respiratory infections, according to reports archived at the Website of the Centers for Disease Control and Prevention, Department of Health and Human Services. The World Health Organization estimates that 40 per cent of the lower respiratory tract infections in developing countries are related to environmental conditions. As caretakers of the sick, women's work burden increases when the environment impacts on the health of other family members.

Some poor women and men have no choice but to work in places with polluted air. Street vendors, who are dominantly women in Southeast Asia, and traffic police, who are dominantly men, are some of the high risk groups exposed to street air pollution. Karita et. al (2001) studied the prevalence of chronic cough and phlegm among traffic police in Bangkok (where traffic is heavy) and Ayuttaya (where traffic is much less), and found a slightly higher prevalence in Bangkok. However, they pointed out that some bias might have been introduced because several police officers were hiding respiratory symptoms for fear of losing their jobs. They argued that if this bias was corrected, the difference would have been much larger.

Poor women and men are exposed to air pollution in other workplaces as well. In Thailand, women working in garment factories suffered from byssinosis, lung damage caused by cloth dust. Thirty-four garment workers are demanding compensation from their employers (CSR website). Ngamnetr (2005) found that homeworkers work in badly-ventilated spaces.

Women are disproportionately affected by indoor air pollution caused by cook stoves in kitchens. World Bank Philippines website noted that a

... 40 per cent of the lower respiratory tract infections in developing countries are related to environmental conditions

study by the Department of Health in Metro Manila in 1999 showed that 42 per cent of the 108 randomly selected households exceeded the standard of indoor ambient standards for Particulate Matter (PM). It concluded: 'While vehicular traffic could be a major source, results indicate that smoking inside the house and cooking with kerosene, wood, and charcoal were primary contributors in these households.'

Indoor air pollution caused by cooking fuels tends to affect women's health more than that of men's. Shrestha (2006) studied two villages in Phnom Penh, Cambodia, and found that most of the people who are sick due to respiratory diseases are women. More than 90 per cent of the people who cook in the household are women, and they spend 1-2 hours cooking every day. The kitchens are mostly small with bad ventilation. Only around 20-25 per cent of the respondents use gas for cooking, since gas is much more expensive than other types of fuels.

Women's leadership and empowerment

Because women are affected differently by the deteriorating urban environment and play different roles in its management, their perception about the urban environment will differ from that of men (Muller and Schienberg, undated). Women are not only victims but also important actors in water management. Chan and Nittivatananon (2006) noted women's role in deciding water-saving technologies in Malaysia, and emphasized women's involvement in water management as decisive for water-saving efforts.

The case of Hua Lamphong klong in Thailand (ADB 2006) showed the crucial role women played in keeping water canals clean. Chung and Poon (1996) showed that in Hong Kong, women are most involved in waste management, and housewives' attitudes are decisive for the success of the source separation of household waste.

In all the countries of the region, women in general occupy a lower status than men as they are less involved in decision-making processes in public places. Their representation in decision-making bodies is generally low. For example, a gender situation analysis in Yogyakarta (Sumiarni and

Arum, 2007) showed that in the municipal council, only 2.5 per cent of the representatives were women. Muller and Schienberg (GDRC website) pointed out that women often have difficulty in finding time to attend meetings, since they need to generate an income to support the family.

On the other hand, women are found to be more active participants in community construction work as compared to men. Fong et. al (1996:p.21) noted that women contributed more by way of voluntary labor or food for work in countries such as Pakistan, India, Thailand, and Bangladesh. This is a common scene in many of the community-based UEM projects where women take up most of the voluntary work. Often, women's involvement in such voluntary activities is shown as evidence of women's participation. However, such involvement has to be analyzed carefully to find out if they contribute to empowering women.

Women's involvement in UEM projects might not challenge their low status in society at all. Women's lower status is manifested and maintained through violence against them. It is often used to 'discipline' women to keep them in their place. It also generates fear among women, and keeps them from deviating from the norms and expectations of their menfolk.

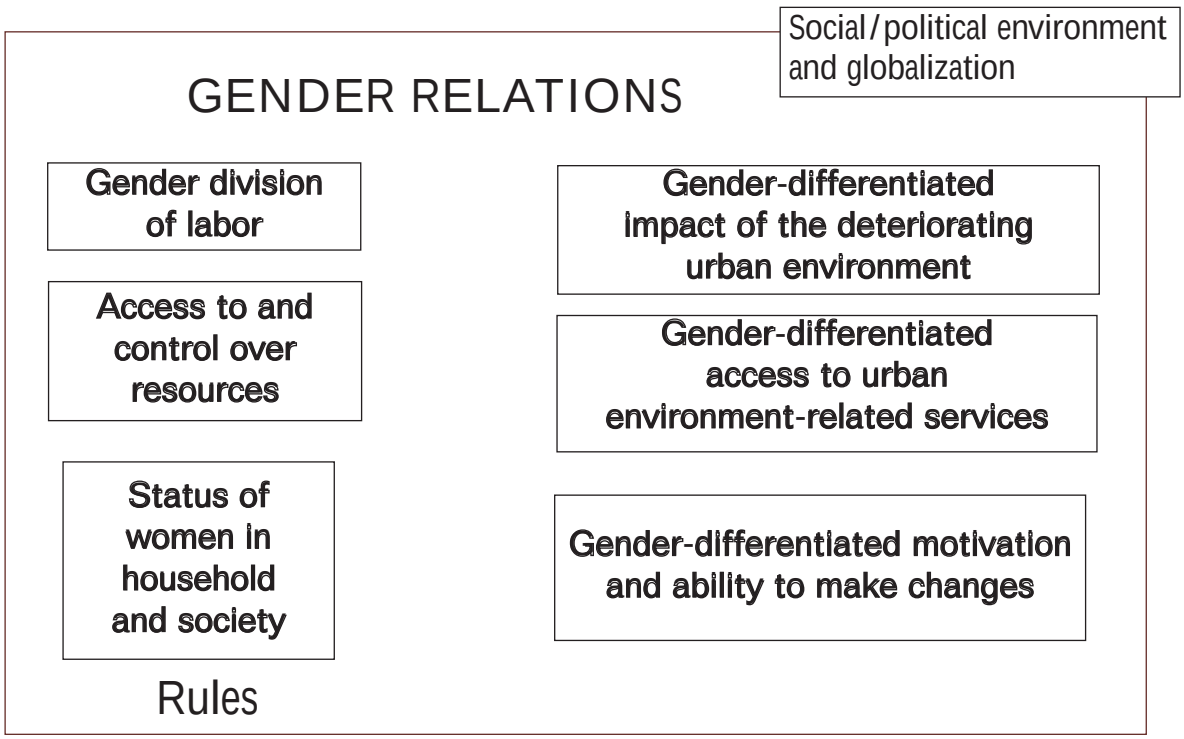
In Yogyakarta, 63 per cent of the households experienced wife battering, and the situation is worse for full-time housewives (Sumiarni and Arum, 2007). This indicates that if women are economically dependent on their husbands, their choices are limited. They have no option but to continue in a damaging relationship. In East Timor, 50 per cent of the women experienced violence in the past one year, but only 15 per cent of the cases were reported. It shows that the figures are just the tip of the iceberg, and the actual problem might be more serious (Robertson, 2007).

Such limited participation by women needs to be problematized. Women's participation is directly associated with project effectiveness, as Wendy Wakeman (1995) noted citing Deepa Narayan's (1993) study that reviewed over 100 rural water supply projects.

So-called successful cases showed that project effectiveness came not because of women's free voluntary labor, but because by involving women, project design had changed. UNDP (2003:60) documented a case in Indonesia, where a group of women pointed out design errors and put women's needs on the agenda as well as set up committees to participate in designing a new water supply. Enabor et al (1998) recorded a Nigerian slum experience – how a water project was used to give women control over land and its management. Women propelled the project, and mobilized men and children.

The Interagency Task Force on Gender and Water (2004) reported that

Gender analysis framework for urban environmental management



in the Aqua-Danone Advocacy Program in Indonesia, women appeared to be more effective in sharing information within their families and through informal networks and the men in sharing information outside their families and through formal networks. Through participation in the advocacy program, women improved their self-confidence and learned to conduct research, share advocacy-focused information and discuss issues effectively with other members.

In order to empower women through UEM projects, it is important to examine how women's roles are defined in each project. Even if they are doing the same recycling work, the way their contribution is presented and perceived will impact on their status in the household and community. For example, if women's work is seen as an extension of household work, it will not make any difference to their status and will only add to their work burden. On the other hand, if it is perceived as official community work and women are perceived as community leaders, it will improve their status in the household and community. Even though women's participation is often limited at higher levels, in some places, women are seen as household and community leaders.

In Indonesia, a community women's group lead their solid waste management project (Wisjnubroto, 2007). In Penang, a successfully replicated solid waste management project has been propelled by women leaders (Khor, 2006). Women micro-vendors in Phnom Penh came together and improved the drainage and sanitation of their workplace (Kusakabe, 2006). What is common in all these cases is that the definition of women and women's work has changed.

Women are not seen as followers, but as leaders. Women are not seen as passive vendors, but as market managers. Women's garbage collection work is not seen as an extension of their reproductive work, but as a solid waste management project for the community.

GENDER ANALYSIS FRAMEWORK FOR URBAN ENVIRONMENTAL MANAGEMENT IN SOUTHEAST ASIA

The overview of the literature on gender and UEM focusing on Asia, especially Southeast Asia, points to certain focus areas:
(1) gender differentiated impact of the deteriorating urban environment;
(2) gender distinguished access to urban environment related services; and
(3) gender differentiated motivation and ability to make changes.

Gender differentiated impact of the deteriorating urban environment

As a result of the gender division of labor, poor women and men are exposed to different types of pollution. The main reason for the gender differentiated impact is traditional gender division of labor that determines what women and men do on a daily basis. Socially, women and men are assigned different tasks and are expected to behave differently. Thus they are in diverse types of occupation with varied roles and responsibilities that create gender-differentiated exposure to risks. Women working as home-based workers can be affected by the industrial processes involved in the production. Traffic police are often men, and are vulnerable to air pollution. Street vendors, mostly women, who make their living along busy streets, are impacted by the emissions and dust.

If they consider space to be 'their' space, the sanitation situation changes for the better

In addition to health risks that directly affect women and men, women are further burdened since they are usually the caretakers of the sick in the household. Having children or elderly suffering from asthma or diarrhea will often require women to stay home and look after the unwell members depriving them of income-generating opportunities.

The second reason for the gender differentiated impact lies in the gender differences in access to and control over resources. Vulnerability to pollution often manifests as a class issue as the poor are less able to protect themselves against pollution. Many poor women and men have no choice but to work in polluted areas. It is, however, noted that women often command even fewer resources than men, especially poor women heading households in urban areas. They are often in a position where they are unable to protect themselves. Women entrepreneurs in small-scale industries typically have to make do with old/inefficient, polluting and unsafe machinery. "Although cleaner technologies may exist, the women may not have access to credit to purchase them or the know-how to use them effectively and safely" (UNIDO, 1995:1).

The third reason for the gender-differentiated impact is women's limited mobility. Bose (1999) noted that spatial confinement and spatial segregation are directly related to employment opportunities for women in the slums of Calcutta. Phadke (2007) and Ranade (2007) also noted that women and men locate and identify themselves to certain locales and restrict/ move through public spaces in Mumbai. Women's and men's mobility, and their sense of space have an impact on their involvement in their urban environment and its management. If they consider the space to be 'their' space, the sanitation situation changes for the better. It is often observed that in slum areas, even though houses are in an appalling condition from the outside, the insides are kept quite clean. The people who are in charge of the sanitation consider the houses as their own space, while the outside is a public space that they cannot influence.

Hata's (2001) work on community garbage for eggs project found that people participated for social concerns as well as personal interests. Even though the study was not gender-disaggregated, it is important to note that the success of this project can be traced to the establishment of the critical link between personal interest and social concern; and the devel-

opment of an effective information dissemination mechanism. It was able to establish the notion that community garbage management is not other people's business; it is for one's own benefit, thereby expanding the geographical limitations of people's mindsets that restricts their work only to things that they believe are their concern.

In Dili, East Timor, women had difficulty accessing garbage collection sites because the road was insecure[4]. Restrictions on women's mobility can restrict women's employment opportunities, and confine them to hazardous jobs such as waste collection. Urban spaces can be dangerous for women, and security concerns again affect what women can do to secure services. It should be noted that the main reason for women's restricted mobility is lack of security. However, what we need to problematize here is the lack of mobility, and not the lack of security. As Phadke (2007) argues, 'protection' for women against such lack of security reduces women's access to public spaces, and it is important that women claim the right to take risks in public spaces, and it is necessary to generate public support for women to do so.

Gender-differentiated access to urban environment-related services

Based on the gender division of labor and the imbalance in workload and benefits, women and men have different needs in terms of making their work and life better and easier. In Karachi, Pakistan, women were often more concerned about sanitation than their husbands, and have been able to persuade their reluctant husbands to pay their share of low-cost sanitation component (Fong, et. al, 1996).

Not only do women have a higher need for urban environmental services, they also have greater difficulty in accessing them. Women normally have less education than men, get fewer opportunities to improve their skills and on average, receive less wages than men. Often, they are secluded into female-dominated works, have few opportunities to or are not expected to travel, and do not usually own land.

These gender differences in access to and control over resources (human, physical, financial, social, etc.) impact on women's access to urban services. With less education, lower mobility and higher seclusion, women have less access to information as well as social connections. Lack of

4 Personal communication with Garbielle Groves.

When technologies are introduced, the operation is often given to the men. Women tend to do unpaid work in the community, and paid jobs go to the men

resources also leads to women's lower ability to purchase/ pay for services. In fact, all poor households find it difficult to pay for services, especially in case of fee hikes for service provision under privatization schemes. Gender and water alliance website (http://www.genderandwater.org/page/4163 downloaded on 18 November 2007) reported that in Chile, after the water and sanitation services were privatized in 1990, water user rates had increased by 314 per cent between 1989 to 2003. Gender and water website further notes that in order to maximize profits and recover costs, private companies increase water use rates and cut back on wages and jobs. Women and unskilled workers are the most vulnerable to such wage and job cuts.

It should be noted that women-headed households are increasing in many cities of the region. In many cases, in urban areas, women-headed households are poorer than those headed by men. In Penang, Malaysia, incidence of poverty was higher among women-headed households (16 per cent) when compared to men-headed households (7.5 per cent) (Hassan, 2005).

In some cities, in-migration has been increasing over the years. Both women and men immigrants have difficulty in accessing urban services. Some rural to urban migrants still have their household registrations in rural areas, making it difficult for them to claim rights to amenities in the place of actual residence. In Thailand, the 30-baht universal health service could only be accessed through the household registration[5]. For immigrants of different nationalities, difficulties are obvious. Lack of citizenship deprives these migrant workers of access to even minimum health services[6].

Employment opportunities are created in many of the urban environment management schemes. Poor women are keen to take the income-generating opportunities created by UEM activities as they have to support their families and there are few other opportunities for them. Muller

5 This has already been amended but there is still much mis-understanding about the entitlements to universal health care.

6 Registered migrants from neighboring countries of Thailand can access the healthcare system on payment of 1,900 baht per year for the service.

and Schienberg (GDRC website) noted that women overcome barriers of distance or culture to retain income-generating work such as waste picking. Women showed greater effort in waste-related work than men who could find other opportunities. Fong et. al (1996:23) reported on the success of women's cooperatives that run urban waste recycling plants to produce and sell compost to local vegetable gardeners in Mexico.

Although such income is very important for women, their needs can easily be ignored. Women have been excluded from employment if the municipal department decides to place excreta collection workers on the municipal payroll. Gupta (1998 in Muller and Schienberg, undated) found that in this case, 70 per cent of the employees turned out to be men. When technologies are introduced, the operation is often given to the men. In water and sanitation projects in Thailand and Cambodia, when water filters were installed, the task of operating the filters, which is a paid job, was given to men.

Women tend to do unpaid work for UEM in the community, and paid jobs go to the men. Based on the expected roles and responsibilities of women and men in the household and society, women and men play different roles in improving urban environment. When activities are introduced in the community, different work gets assigned to different people. Since women often play greater roles in voluntary community work, any new unpaid voluntary community work is given to the women as an extension of household chores. This means an increased unpaid workload for women though everyone will benefit from the improved environment in the community. This is a free rider problem. Women normally accommodate such unequal sharing of community work as their duty as good mothers, wives and good citizens.

Gender differentiated motivation and ability to make changes

As discussed earlier, women tend to have less role in public decision-making compared to men. Because they tend to stay at home, women are seen as the logical choice for environmental monitoring and health education. Women themselves note that they are involved in community education projects because they are at home more often[7].

Due to the socially accepted roles of women, it is often observed that

7 Interview with women community leaders in the project area of Forward Foundation.

Due to the socially accepted roles of women, often women's knowledge of the urban environment is not appreciated or acknowledged

women's knowledge of the urban environment is not appreciated or acknowledged. As a result of the division of labor, women and men acquire different kinds of knowledge and skill. For example, women are better aware of the condition of waste collection points and the composition of domestic waste than men since they dispose off the waste.

Muller and Schienberg (GDRC website) report that while community men preferred a sophisticated drainage system, women preferred a simple one that can be operational right away. In upper and middle class neighborhoods, it is the domestic workers who are more knowledgeable about the condition of communal waste facilities. Therefore, for solid waste management activities, involvement of women and domestic workers is essential. In the case of air pollution, mothers who have asthmatic children might be more sensitive to air quality than others.

All these instances show the importance of understanding and accepting women's knowledge of the environment. Even though women have adequate knowledge and larger roles to play in environmental management, they are often deprived of opportunities to participate in decision-making processes of UEM. Although women have more knowledge and higher need to improve the urban environment, they often lack the resources to make the changes. World Bank's website on indoor air pollution lists various means to improve indoor air pollution such as: better stove design, better ventilation, cleaner fuels, partitions in homes to separate cooking and sleeping/living areas, better ventilation or ducts, reduce time spent in kitchen/cooking area, and keep children away from the smoke. These are interventions that are effective in reducing indoor air pollution, but they all need changes in resource allocation in the household as well as behaviour and role changes of women and men.

In order to provide women with resources to make changes, World Bank promotes stove building as an income-generating opportunity for women. SEWA was also successful in improving water supply services by combining it with micro-enterprise development and capacity building programs for women. The time saved in water collection could be used for income generation that contributed to reduce poverty in semi-arid areas (Page 2488). Bennett (1998) noted that even when women are not in the

formal decision making body, they could still influence policy by keeping the issues visible. She described the case in Mexico where women's groups made water a national priority by continuing to stage demonstrations and making the issue visible.

Discussion and conclusion

The above discussion has been summarized in Figure 1. Earlier research and cases show that gender dimensions in UEM can be largely classified into (1) gendered vulnerability, (2) gendered access to services and opportunities for business/income generation, (3) gendered ability to make changes. These are guided by gender relations that are largely determined by (1) gender division of labor; (2) access to and control over resources; and (3) status of women in the household and society. Inequalities in these three areas are maintained by what Kabeer calls "rules" for carrying out various activities (Kabeer, 1999). Gendered vulnerability and access to services also affects gendered ability to make changes, which will further strengthen or challenge existing gender relations, which in turn maintains/ changes gendered vulnerability and access to services. The macro economic, social environment as well as globalization influence all these roles, relations and the definition and values of these activities.

The advantage of this framework is that it highlights issues that have been identified in the past research especially in Asia and showed linkages/ hints to analyze the inter-linkages between gendered phenomenon and gender relations as well as resources and practices that constitute gender relations. What is important here is the emphasis on access and decision-making with respect to urban services and income-generation opportunities. This is different from rural-focused gender and environment framework where service provision and business opportunities are normally not part of the analysis, though policies and mechanisms are. The review of gender issues in UEM, especially in Southeast Asia, gives us a basis to propose an easy-to-use framework.

As discussed in the beginning, all frameworks are based on certain values. This framework has strong emphasis on what urban community women and men can do to improve their living and working environment. The focus is on strengthening capacity, especially of women, to enable them to take action. Thus the focus is on how to make women more empowered, rather

than how can the project use women to make the project more effective/efficient. The effectiveness component is usually taken care of by the project itself, given the recent strong focus on results and results-based management. Thus this framework attempts to balance the perspective by putting women's empowerment as its central goal, through which it can contribute to the immediate result of the project under its scope[8].

One of the difficulties in using this framework with the above-mentioned value is that since the framework is based on past experiences, it is not able to clearly lead to interventions beyond what has been done. For example, in community-based solid waste management projects, women are often used as voluntary labor. Even though such involvement does give women more visibility, it does not necessarily lead to women's role being redefined for better recognition. There have been successful cases where women have grown out of the 'traditional' assigned roles such as in the case of Penang (Khor, 2006). There is a need to better understand the process through which the transformations occur.

In this connection, the approach that Phadke (2007) and Ranade (2007) took to explore mobility and meanings attached to places are important perspectives to explore. Gender analysis in UEM is still in its infancy looking mainly at vulnerability and involvement of women. It is high time that research is geared to 'deepen' gender analysis to understand the process of women's empowerment through UEM projects so that women will not be confined to small recycling projects, which are considered as extensions of their reproductive work.

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8 It is often the case that whenever a strong gender claim is made in a project, it is dismissed with the phrase 'this is not a gender project'. Here, if the project does not have a strong women's empowerment goal, it is considered the drawback of the project itself. Unfortunately, this is not always the case. Thus, this framework tries to put gender center stage to make gender equality the ultimate goal of the project intervention.

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www.genderandwater.org

SECTION: 3
GENDER IN WATER AND SANITATION

An overview

Water is essential to life. In urban areas, given the density of population, water and sanitation tend to go hand in hand. This covers the needs of the people in terms of water for cooking and drinking, water for domestic use as well as small enterprise use, and drainage.

Because women are the main caretakers of the sick, and the main housekeepers, acting as cooks and cleaners in the houses, access to clean water and adequate drainage is critical issue for them. Inadequate access to clean water causes health problems. It also increases women's burden in terms of time and effort as they who need to fetch water for the entire family. They will try to economize water use, which increase the pressure and stress on women. As the cases that follow show, women's voices are not always heard, and that can lead to a failure in ensuring access to water for poor households.

Access to toilet facilities are important for women, who need privacy for defecation. Lack of toilets in schools can induce absenteeism among girl students, especially when they reach puberty.

Privatization of water and the higher cost of water further increases the pressures on women, who are often the financial managers of their households. Given the serious financial crunch they face, they often have to choose between buying water and food.

As the cases that follow show, some women have shown their leadership qualities around the issue of water management. It should be noted that water management technology training is often attended by men, since it is considered technical. However, women need to be knowledgeable about technology, since they are the ones who are managing and maintaining the system.

Further, how water and sanitation issues can become a spring board for women to gain social standing and get their voices heard in their community is an important aspect in designing UEM projects.

1

Cleaning our canals

Romyen Kosaikanont

Thailand is a relatively small country with an area of approximately 321 million rais or 513,600 square km. Thai population is 62.4 million with 94 per cent, 4 per cent, and 1 per cent Buddhist, Muslim, and Christian respectively (NSO, 2006). The economy was heavily hit by the economic crisis in 1997, but is now performing relatively well. In terms of human and social development, Human Development Index for Thailand is 0.784 which gives Thailand a rank of 74th out of 177 countries (UNDP, 2006). As for women's status, the gender development index (GDI) of the country, which measures inequalities between women and men in terms of life expectancy at birth and adult literacy, is 0.781 which ranks Thailand at 30 out of 136 countries. Thailand has been ranked 60th out of 75 countries with GEM value of 0.486 (ibid, 2006), because Thai women are active in economic and political life.

Thailand has varied terrain and can be divided into five geographical regions — North, North-east, South, East and Central Thailand. According to the second National Economic and Social Development Plan implemented in 1960s, Chiang Mai has been strategically identified as the capital of the north as per the development redistribution policy. With this plan, the government has invested both technical and financial resources to improve basic infrastructure such as road, rail and air services, electricity and water supply. Government offices have been established to boost the economy of the northern region and generate more work opportunities in the region. This infrastructure attracted new businesses in Chiang Mai.

Currently, Chiang Mai has transformed from an agriculture-based economy to a highly urbanized and diverse economy. It is second only to Bangkok, the capital, in terms of size of the economy and number of residents. Chiang Mai also has a wide range of economic activities with the six largest sectors, in terms of income generation, being manufacturing and construction (19 per cent each of total GPP), service (17 per cent), wholesale and retail trade (14 per cent), agriculture (12 per cent), and transportation and communications (10 per cent) (ibid, 2007).

An increase in business opportunities in Chiang Mai generated more work not only for people living in town but also for people in neighboring provinces, especially farmers who were forced out of business following the collapse of the agricultural commodity market in the 1970s

Women, in particular, were at threat as they stayed home during the day and had to interact with government officials who came to the slums

(Sirinporn et.al., 2004, Romyen, 2003). These migrant workers — mostly male — flooded into the main economic hubs to seek new job opportunities. Usually, they were concentrated in low paid, unskilled jobs because of their lack of education. At the beginning of these migration trends, these migrants were working as casual labourers in the construction sector.

For new migrant workers, the problem of residence and housing was significant. They often invaded empty lands and built temporary shelters for themselves. The land picked for such shelter usually belonged to the government, scattered around the city (Sirinporn, 2004). As many temporary shelters came up in the same plot, a community developed. More people, including wives and relatives of early migrants, migrated into Chiang Mai.

Anatomy of a slum

Chomchon Hatanwa[1] is an example of how 81 highly dense communities or slums developed in Chiang Mai. Geographically, Chomchon Hatanwa is a long strip of land. On the left is an ancient city wall which is over 700 years old. On the right is a canal called Kuu Wai. Throughout history, Chomchon Hatanwa residents have always experienced problems with land insecurity as the policy towards land management is highly changeable and determined greatly by local politicians and the political situation. In a bid to gain more votes, some local politicians issued land certificates to these migrants, while others attempted to exclude them.

This changing land ownership put these migrants in a vulnerable position. Women, in particular, were constantly at threat as they stayed home during the day and had to interact with government officials who came to the slums to evict them or enforce other rules. Moreover, slum dwellers were often looked down upon by other residents because they were poor. They were stereotyped as environmental polluters. Without land owner-

1 Chomchon means community whereas Hatanwa means 5th December. December 5th, the King's Birthday, is celebrated as Father's Day and is a national holiday in Thailand.

Slum dwellers were often ... stereotyped as environmental polluters. Without land ownership, they are not eligible for house registration, and hence they can't access services such as water supply, power, telephone, sewage system, etc.

ship, they are not eligible for house registration. Without a house registration, they can't access government services such as water supply, electricity, telephone, sewage system and garbage collection. At first, the lack of these services did not seem to be a problem. Boonruang Pararangsee, the son of the very first residents, recalled:

> We used to live quite an easy way of life some 30 years back though we were depending greatly on the environment. When our parents' generation migrated to Chiang Mai, they could still use the water in the canal to grow rice, bathe and drink. We did not cause any environmental damage but felt that we could live with it nicely. The canal used to supply us with more than enough fresh water to be used for consumption by the whole community. The water used to be so clean and clear.

Traditionally, the women, including wives and daughters, who migrated to Chomchon Hatanwa following their head of household were responsible for all the household chores. Where the services were not available, they had to carry water from the canal to their houses for cooking, cleaning and other needs. The garbage generated by the households was deposited at the main waste collection point outside the community by the women.

In recent years, Chiang Mai has attracted media attention, especially the crisis in solid waste management and the polluted canals. Chiang Mai generates approximately 300-400 tons of solid waste daily but the municipality collects only 270-360 tons (Papers for Trees Project as cited in Prachadhrama News, 2002). Slum communities are often marked as a cause of pollution. In 1995, POP (People Organization for Participation) under the Thai Foundation, and NGOs working in the area of urban development decided to resolve these problems.

Caring about canals

POP is an NGO working with slum communities in big cities, including Chiang Mai. The main objectives of POP are (1) to advice and consult with the communities' dwellers to carry out community development work; (2) to educate community dwellers to create their own development support network; (3) to support and promote human development with the goal of raising awareness of a good citizen.

POP organized a twice-monthly canal tour for youth living in slum communities along the canal. The main objective of this activity is to survey the condition of the canal in order to identify the cause of the water pollution. This is to counteract accusations that the slum dwellers are solely responsible for the polluted canal. It also aims at raising awareness about environmental protection among youth.

Following the survey (Thai Foundation, 2000), it was identified that water pollution in the canal was caused by

- The release of untreated water by many factories and businesses such as the garage, dyeing factory, slaughter house, hospital, market and many shops.
- Some drainage pipes provided by the local government could not be used for draining water because of its level of installation.
- The water way was obstructed by some of the houses extended into the canal.
- There was a garbage dump directly into the canal.
- Some streets were built on top of the canal blocking the water way.

With the deterioration of the canal water, women were faced with the problem of water shortage. They have to buy water from outside the community for household use and for drinking. As they spend most of their time at home, women have to bear the bad odor and foul smell generated from the canal.

As these problems mounted, women, especially those working within the community, started to discuss ways to resolve the problem. They identified the need to clean the canal. So on December 5 (Ha Tanwa which later on became the name of the community), women mobilized people

living within the community to come out and clean the canal. Men raked the weeds in the canal and picked out the waste while women and children helped in carrying the waste. Women also cooked and supplied food for men. Panngam Somana, the leader of the women's group and the organizer of the event, said:

> We need to get people involved in this process because people will feel that they have kept the canal clean. I think taking part in this activity will help conserve the canal.

But getting people involved in the event is not easy. Panngam Somana, aged 48, a divorcee and a mother of two sons (aged 21 and 17) recalled:

> Getting people to come and enter the muggy canal to pick out all the waste was not an easy job. What we [women] did then was to advocate the issue by producing awareness-raising stickers and also provided food on that day for all the people who came to help us. I guess being a woman does not help much because they did not believe us. But later on, when they saw the result — improved water condition — they started to welcome our ideas.

More than just canals

Panngam now continues working on community development. She has started a women's group to discuss the problems of the community and seek ways to resolve it. For example, at a recent meeting, the problem of children neglected at home by working parents was discused. A community survey revealed that the numbers of young families is increasing. As

more women work outside the home during the day, the women's group feels the child care is a problem. Hence, the group proposed to the community committee that communal land, which was earlier an open dump site, be used as a child care centre.

Again, Panngam brought this issue to the community committee meeting and the committee agreed to the proposed on the condition that the women's group raise funds by themselves. Panngam sought funds through various channels. Almost 200,000 baht was raised from various sources including Danish Cooperation for Environment and Development (DANCED), Social Welfare Department and the Social Investment Program Menu 5 of the World Bank and the child care centre was built by local construction workers. Currently, the child care centre is operational and a majority of the children come from the community (18 out of 30 children).

As for the canal, it is still being looked after by the community dwellers and they have a regular big clean up on December 5 each year.

Panngam later on became the secretary of the community committee and continues doing community development work. The community has been recently awarded for the best community development project. A savings group is being set up to help the community dwellers save money to buy land for a home outside the community in Chiang Mai.

Asked to comment on the work she has done, Panngam said:

> I am proud of what I have done. I think the women's initiatives of cleaning the canal has proved to other community's dwellers that we can do community development work. Women's

group's ideas are now welcomed by the local government as well as the community committee. I have now been elected as a member of the community's committees.

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Questions

1. Explain how this project by women changed their ability to transform the community.
2. Explain the gender differentiated impacts of the polluted canal in Chiang Mai.
3. In what ways has this project maintained / changed existing gender relations?

2

Women pay the price

Hor Sophea

Cambodia is inhabited by 6,647,000 people (as of 2005), 52 per cent of them women. Phnom Penh is the capital city of the country. An estimated 20 per cent of the population lives in the urban area while the remaining live in rural areas. The urban area in the country has been growing at a rate of 8 per cent each year. Every year, large numbers of rural people migrate to the city in search of work and livelihood. Rural poverty and comparatively better employment opportunities in urban areas work as push - pull factors encouraging rural-urban migration.

Gender equality is a constitutional provision of the Royal Government of Cambodia (RGC). The RGC has made good strides to promote gender equality and improve the status of women. Establishment of a full-fledged women's ministry (called Ministry of Women's Affairs), Cambodian National Council for Women, Technical Working Group on Gender (TWGG), and Gender Mainstreaming Action Group (GMAG) in each ministry, adoption of a five-year strategic plan (called *Neary Rattanak*) which focuses on women's capacity building and integration of gender perspectives in major national development plans including the National Poverty Reduction Strategy (NPRS). The RGC has also made good legal reformation. In 2005, a law on domestic violence was adopted. Laws on trafficking, marriage, divorce, HIV/AIDS, and rape make adequate provision for the protection of women's human rights. According to UNDP rating, Cambodia ranked 99th in gender-related development index (GDI) and 73rd in gender empowerment measure (GEM) in 2006.

Despite efforts by the government to promote gender equality, there are serious concerns in many areas, including under-representation of women in the national parliament, local governance and public services; higher drop-out rates among girl students at higher levels of education; teaching of *Chhab Srey* – the traditional code of conduct that legitimizes women's traditional roles and relations in school; high rates of maternal mortality and poor nutritional status among women; high prevalence of domestic violence, growing rate of HIV/AIDS transmission among housewives and pregnant mothers; occupational segregation and concentration of women in low-waged and unskilled labor sectors; and higher rates poverty among women, particularly in rural areas.

Gender issues in urban environmental management in the country have

Gender issues in urban environmental management have not been identified and reported either by the government or civil society organizations.

not been identified and reported either by the government or civil society organizations. Gender in urban environmental management in Phnom Penh is a relatively new and contemporary discourse. Women's gender differentiated needs, interests, scopes and limitations, particularly in relation to water and sanitation, have never been considered and addressed in the municipal plan, policy, program and service delivery.

Water in urban Cambodia

The urban population in Cambodia, including people living in Phnom Penh, collect drinking and household water from a variety of sources. These include piped water, public tap, dug well, surface water (i.e., pond, lake and rivers), rainwater, and water sold by private vendors. In Phnom Penh, a considerable percentage of people use high cost water supplied by private vendors, which often comes from unreliable sources. The people who use the high cost water belong to the comparatively low-income group and live in scattered new settlements. The municipal water supply system is yet to connect these new settlements. The cost of water in some of these settlements is around 1USD/cubic meter, whereas the cost of water supplied by municipal water supply authority is around 10 cent/cu.m.

A sizeable percentage of city dwellers in Phnom Penh do not have healthy and hygienic toilet facilities. In the city, 41.4 per cent of the households have toilets connected to the sewerage system and 36.7 per cent of the households have septic tanks. Twelve per cent of the households do not have any toilet facilities and 2.4 per cent use public toilets.

Most slum dwellers face drainage and sewerage problems, especially during the rainy season. One third of the settlements do not have any system to evacuate storm water or wastewater. Only about 30 per cent of the families in poor settlements have access to indoor toilets and the human waste is mostly discharged in open spaces, ending under or near houses

It is the women and girl children who bear the responsibility to collect water from the pond, boil the water and preserve the water in a jar.

where it presents a health hazard and contributes to the degradation of the local environment.

Urban Poor Development Fund

Slums are a growing problem in Phnom Penh. The Phnom Penh Municipality (PPM) has been shifting slum dwellers to suburbs for the last few years to keep the city environment clean and decent. The Mlobpo Thmay community, one of the newly-settled communities in the suburbs of Phnom Penh,was established by the PPM. Located in Dongkor district, it is a habitat of 100 households comprising of 460 people (179 men and 281 women). The PPM established this community in November 2001 under the project "Urban Poor Development Fund (UPDF)". The community was established to encourage the people to improve their livelihood by acquiring physical assets such as house and land, and improve their income through credit support. Supported by MISEREOR Germany Fund, the UPDF also cooperated in the establishment of this community. The project supported the construction of the community road, drinking water, sanitation and toilet facilities, accommodation (house), and credit to bring better livelihood to the people.

There are four councilors (two men and two women) in the Mlobpo Thmay commune. The chief of the commune is a man. One of women councilors is responsible for statistics and administration and the other is responsible for health and education of the community people.

The entire project was administered through the district office of the Ministry of Rural Development (MRD). As mentioned before, one of the project components was provision of water supply and sanitation facilities to the households. MRD installed five semi-deep tube-wells and 93 air-sealed toilets for the entire community. It is noted that there is a water pond close to the community. The water in this pond is not very safe for drinking and household use. This is because of lack of maintenance of the pond, particularly during the rainy season. Flash water enters the pond carrying waste, human excreta, and other poisonous substances.

However, MRD installed the tube-wells without consultations with the community or testing ground water quality. Since, women traditionally bear the responsibility to manage household water, they should particularly be consulted in the planning stage of installation of the tube-well. People in the community claimed that they did not receive any knowledge or skill training from the project except some environmental awareness activities by PPM and dissemination meeting on domestic violence by the local staff of Ministry of Women's Affairs (MoWA).

Success or failure?

All five semi-deep tube-wells were reported to be out of use. The tube-well water contains high iron, lime, arsenic and other toxic metals and cannot be used for washing clothes or cooking food. Use of tube-well water for bathing causes skin problems. There are a number of cases of skin disease in the community caused by the use of tube-well water.

Ms. Kai Seak Hon, a 55-year-old widow says, "My son and granddaughters have skin disease because of the tube-well. I am very worried about my grand children because they often buy some food from the shops and restaurants in the community. The sellers use unsafe water to prepare food such as desserts. After eating food from the shop, they also drink water from the restaurants, which is unsafe for health. I don't know what will happen in the future to their health."

Presence of such metals and toxins in ground water is common in many parts in Cambodia. Currently, women collect unsafe water from the nearby pond, and boil it for household use. Some families use the boiled water for drinking, while those who are economically better off buy drinking water from private vendors. Private vendors sell two types of water for drinking: one is untreated water and another is treated water. The cost of untreated water is 900 Riel/20 liters and the cost of treated water is 4000 Riel/20 liters. Only a few households in the community buy this water for drinking. The women-headed households who have many dependents usually use the pond water for drinking and household purposes.

It is the women and girl children who bear the responsibility to collect water from the pond, boil the water and preserve the water in a jar. Fuel for boiling water is another problem of the community people.

Households have to buy the wood or charcoal from the market or collect some sort of fuel wood from the nearby forest. Ms. Kai Seak Hon said,

> "I bring my grandchildren to the pond to shower. Women in the community are responsible for water management in the household. They wash clothes and fetch water from the pond, because men always stay outside for work such as motor taxi driving, and construction labor. They come back from work at night. So the responsibility to collect and manage water for household consumption finally falls on the women."

Men collect water in some families, but this is not done regularly. Women are primarily responsible for water for household use. In fact, the project has increased women's workload. The household water management responsibility rests with women. Due to their social role as home makers, women in the community are likely to run some home-based or community-based income-generating activities. They are less likely to go far from their home to earn an income.

Clearly, the project is not a success and women are paying the cost of the failure. If women were consulted, they would have suggested that the project proponents use pond water. The Ministry of Rural Development (MRD) plans to raise funds to improve the quality of the pond water by constructing a boundary wall to protect the pond from flash water and leakage of toxic substances into the pond during the rainy season. The project proponents have identified this following consultations and discussions with community women.

Questions:

1. In what ways has the water pollution affected women?
2. Specify how women's workload has increased with this project intervention.
3. Suggest steps to be taken to improve access to drinking water for poor women in the village, especially taking into consideration the realization that the project failed because women's voices were ignored.

3

Where water flows, life grows

Fe Quanico Salcedo

"Where water flows, life grows" is the motto of Tabok Barangay Council. Indeed, life is teeming in this barangay (village) that has become highly industrialized and is a fast-growing barangay of Mandaue City in the Province of Cebu. The influx of people into Barangay Tabok is inevitable as Mandaue City becomes the second-most important city in Cebu. Mandaue City has a total population of 309,341, of which 51 per cent are women and 49 per cent are men. The population has increased rapidly. From the population of 7,323 in 1995, it shot up to 10,691 in 2000 and to 12,373 in 2004. With the thriving population come the multitude of problems that affect women and men differently, one of which is water.

The Water Problem ...

Before the 1980s, the primary source of water in Barangay Tabok was from across the river or swamp. Women who were the main water fetchers crossed the river and swamp to get the precious water. Later artesian



Noticeably, those who were paid as water fetchers were men, while women remained the unpaid ones

wells were constructed. However, people continued to suffer with an inefficient water supply system. Daily, people lined up and waited about 10 - 20 minutes for their turn to get water. Though water was made more accessible, women still faced many problems. As housekeepers, they carry out most of the household chores, including fetching water. Fights would often erupt, mostly among women lining up for water. Peace and order was affected. There were several reported incidents of petty quarrels. The water issue had a greater impact on poor women. Those who had the

The flat rate system was deemed unfair. Households with more members were charged the same as those with fewer members

means to hire a worker to fetch water were also negatively affected as it meant lower savings. Noticeably, those who were paid as water fetchers were men, while women remained the unpaid ones.

In the early 1980s, two deep water wells were constructed within the village through the Water Sufficiency and Sanitation Program. This was managed by a people's association organized through the assistance of the Mandaue City Community Development Officer. Water was made available through a communal or cluster system. This meant at least 10 households shared a single water outlet. Each of households was charged a flat rate regardless of the number of people in the household. Access to potable water supply was addressed. Water availability was scheduled. Residents, especially women, had to wake up early or sleep late to collect water for their daily needs. Clearly, an available water source is not sufficient to address the water issue.

Fights were regularly witnessed in the community as everyone wanted to be first in the line, afraid that there would be no more water when their turn came. There was severe account delinquency as many households refused to pay. The flat rate system was deemed unfair. Households with more members were charged the same as those with fewer members.

In 1992, one of the wells broke down. The association did not have funds to restore it and maintain the other well. It was cash strapped, due to high account delinquencies, ineffective collection system and the lavish meeting costs of officers. Eventually, after 13 years, the Tabok Rural Water

Works System (TARUWAS) was rendered non-operational. The water situation of Barangay Tabok worsened. With about 7,000 residents, the village faced severe water scarcity for more than two years. People again started fetching water from the artesian wells. They were no longer guaranteed safe and potable water supply. Health problems increased, especially, malnutrition, diarrhea and skin infections. Peace and order further deteriorated as more water-related fights occurred.

Residents had no choice but to pay the high-cost charged by private water retailers. Women were affected the most, particularly women belonging to the lower- to middle-income groups constituting the major portion of the population. These households were generally dependent on the income of men working in industrial and commercial establishments in the village.

Women usually bore the brunt of household chores and managing the financial and physical well-being of the family. Additional water cost meant higher financial stress. The health problems brought about by water scarcity gave women not only financial but emotional problems as well as household responsibilities were not always shared. Indeed, women were the most vulnerable and the most affected by the absence of a water system and the inefficiency of the water service.

Potable water for Barangay Tabok

After grappling with a water crisis for more than two years, the Barangay Council of Tabok initiated the formation of an autonomous, non-stock, non-profit corporation called the Tabok Rural Waterworks System, Inc. (TARUWAS), to operate and manage the barangay waterworks system. The Tabok waterworks system is a project owned by the barangay government and the Council has authorized TARUWAS to operate and manage it in accordance with Local Government Code provisions. The primary objective of the project is "to increase access to a safe, affordable and continuous supply of potable water to all residents with consideration of the environment."

"Women and men of Tabok were asked, to choose between water and electricity. Water was the obvious choice ... water is precious, water is life"

Members of the TARUWAS see the waterworks system as a business and a service. They see to it that pipelines are installed sufficiently nearer and more accessible to target beneficiaries. Women as housekeepers benefit the most.

To date, TARUWAS has acquired five deep wells with concrete tanks that supply and distribute piped water to 1,043 households and benefits more than 5,000 individuals. The waterworks system serves only the residents of Barangay Tabok who are mostly laborers and workers of the industrial and commercial establishments in the Village. Industrial and commercial establishments are not serviced by TARUWAS.

Water connections are installed immediately upon the availability of water pipes, meters and other needed materials. The materials are provided by the subscribers in addition to the required construction of toilet/latrine in their house prior to the installation of water facilities.

In parts of the village that cannot be reached by the TARUWAS facilities and where people could not afford to pay, artesian wells were installed. Access to potable water is provided, but the efficiency of access to water that primarily affects women is still a concern.

Over all, the services provided by TARUWAS are:

1) water supply and distribution;
2) water treatment;
3) water conservation; and,
4) sanitation that includes toilet and drainage.

The waterworks' five facilities each composed of a deep well, deep well pump and a water tank ensure the 31,569 cubic meter requirements of its subscribers. The continuous supply of clean and safe water in the village is one of the factors that attract several companies and firms to operate in Barangay Tabok. The TARUWAS is environment-friendly as it minimizes the proliferation of small artesian wells and prevents salt intrusion into groundwater. Cebu being an island province, groundwater is prone to salt intrusion.

With less domestic burden, more women are given the opportunity to earn from contracting jobs offered by the industrial and commercial

Life as Water Flows ...

Women as housekeepers cook, address nutritional needs of children, wash dishes, wash clothes, take care of the sanitation and hygiene, take care of the sick and beautify the home, in addition to other tasks. The centralized waterworks system facilitates the proper monitoring and protection of water quality. Thus, the health of the community is safeguarded and lives of women as caregivers of the sick is made easy. Women as finance managers also found relief as savings are generated from water expenses. Estimated monthly saving for each subscriber with respect to the rate is PhP 198.46. According to key informants, living conditions of the villagers improved due to increased savings and lower water expenses. Water-related quarrels have reduced significantly as attested by the logbook of the Lupong Tagapamayapa (Village Peace and Order Council).

Records indicated that women were mostly involved in water-related quarrels. A better waterworks system with clear rules and guidelines brings about better community relationship among women. A successfully managed water system allows women to spend their time in productive ventures, managing the home, strengthening relationships among family members and contributing to the growth of the community. The TARUWAS also employs women in the following positions: Secretary to the Board; Pump Tender; and two Accounting Clerks. The waterworks system in its agreement with the Barangay Council is committed to provide at least PhP 50,000 annually to support the barangay projects. The TARUWAS-supported projects have an impact on the residents of Barangay Tabok, particularly women, are:

- Construction of a temporary makeshift day care center
- Construction of 12 makeshift classrooms for the village elementary school
- Opening of the high school made possible by the construction of

Where the water flows, life has been liberating to women. There has been better role recognition and participation of women in the community. One of the accredited organizations in the barangay is the Tabok Women's Organization (TAWO). TAWO is an active partner in environmental and social concerns. Its members participated in the River Clean-Up Project. They also participated in the effort of the barangay council to protect the aquifer from water depletion and prevent salt water intrusion in the area through the "Free Jackfruit Tree Planting Program". The women, through the TAWO special committee, are active in the arbitration and mediation works that involve domestic as well as community relationships. Women's lives have gone beyond the confines of the household and the community as well. With less domestic burden, more women are given the opportunity to earn from contracting jobs offered by the industrial and commercial companies.

the Tabok High School makeshift building
- Financing of street lights
- More concrete and improved access roads and passages made possible through purchase of lots and improvement of the drainage system
- Construction of tennis court
- Community beautification project through construction of plant boxes
- Cemented road in front of the Barangay Hall
- Support to barangay council operations such as procurement of furniture and fixtures as well major repair of barangay multi-cab.

TARUWAS adopts socialized water pricing, "the more you consume, the more you pay". Under this set- up, poorer consumers are subsidized by those who can afford to pay. These people do not mind the socialized scheme as they see that the optimal use of their fees hastens the development of the village and supports the barangay projects.

Questions

1. How are women and men affected more by the lack of piped water services?
2. What are the benefits that women and men were able to obtain through this project at different stages of the project implementation?
3. How would socialized water pricing benefit poor women more than flat rate pricing? Socialized water pricing does not automatically ensure poor-friendly service provision and gender equality. What considerations should be made to ensure good services for poor women?

4

Free clean water goes corporate

Anny Andaryati

Ms Nina was born and brought up in Cipaganti, northern Bandung, and continues to live there. She is married and a very proud mother of three children. Her husband works for a local university. The river Cikapundung runs through Cipaganti. Nina remembers that when she was little the river water was abundant and clean. She used to play in the river. There was also a spring not far from her house which was the family's source of drinking water. Nina herself continued to use the spring for her own household. Her house does not have piped water supply. It has a bathroom and toilet with a pit latrine.

Over the last few years, Nina has noticed the progressive deterioration of her environment. The spring which was used by her mother and then by her for household drinking needs is no longer accessible because the land was sold by the government to a local university and the new landowner has built up the area. The new owner now uses the water for its own needs, and only the waste or excess water is available to the community. This is sometimes not drinkable because its color is yellowish and carries sediments. As a result, she has to spend Rp. 1,000 (US$ 0.12) a day to buy drinking water for her family. She buys water from her neighbor who has piped water from the government water utility company (PDAM). Because her husband has a permanent income, Ms Nina is quite well off compared to her neighbor. However, she can't afford a water connection in her house because of high connection charges and high fixed monthly charge. Of the 90 households in her neighborhood, only 10 are connected to the government water utility company.

Ms Nina and her family have their own bathroom and toilet in the house, but they prefer to use a communal bathroom and toilet located about 100m from her house, close to the community mosque. As they use public facilities, she does not need to carry water to her house, which would add to her already heavy burden of household reproductive tasks. In addition, there is social value for her in using the communal facilities:

Ms Nina and her family have their own bathroom and toilet in the house, but prefer to use a communal bathroom and toilet about 100m from her house, close to the community mosque

She can keep in touch with the other women in the neighborhood while washing her clothes and dishes.

The division of labor between Nina and her husband is a traditional one. Nina's husband is the family bread winner, working every day from 8 a.m. to 5 p.m. Nina does reproductive chores such as cleaning the house, cooking and other general duties to take care of her family. She also takes her children to school and helps them with their homework. One child is at secondary school, another at primary school and the last is not yet of schooling age. Nina's household duties are greater than average for Indonesian urban women: UNDP (2006) estimated that women in urban Indonesia spend 6.38 hours per day for household duties.

Ms Nina has noticed that her neighborhood is getting more crowded. Most of her childhood friends still live in the area and they have their own families. In addition, there are newcomers to the area, drawn by the prospect of jobs and economic opportunities in Bandung, the capital of West Java Province. Bandung offers more work opportunities compared to the villages or smaller towns in the area. This situation is reflected in the population statistics for Bandung:

POPULATION OF BANDUNG CITY	
Women in 2000	17,675
Men in 2000	18,048
Total population in 2000	35,723
Total population in 2006	39,750
Growth per year	1.8 per cent
Total population classed as poor in 2006	2,243 (6 per cent)
Total population with access to clean water in 2006	15,538 (39.09 per cent)

Source: Bureau of Statistics, Indonesia, 2000, 2006

Urbanization of Bandung

Bandung is typical of this rapidly urbanizing nation: UNDP statistics show that the urban population in Indonesia in 1975 was 19.3 per cent, and by 2004 had risen to 47 per cent. The World Bank estimated that 40 per cent of the Indonesian population lived in cities in 2004 and predicted that this would rise to 60 per cent by 2025.

The increasing population, the growth of the city and industrial development have all put pressure on water resources. The river water where

However, the reality for Nina is that the local well has dried up, there is no pump spring they used is no longer available...

Nina bathed as a child is less abundant and heavily polluted. The system for collection and disposal of household waste is inadequate, and most households simply throw their solid waste into the river. In the absence of a sanitation network, many households rely upon private septic tanks or dispose of their liquid waste (sewage) directly into rivers and canals. World Bank reported that only 2-3 per cent of Bandung residents have access to a working sewerage system (World Bank 2004).

In Indonesia, no national level ministry is responsible for sanitation policy or designated to lead a national sanitation campaign. The responsibilities lie with the local government. Less than 10 cities in Indonesia have some form of sewerage network and this reaches only 1.3 per cent of the urban population. Lack of sanitation facilities has contaminated the surface and ground-water and has resulted in local epidemics and high incidence of fecal-borne diseases.

Statistics shows an increase in the percentage of households in West Java with access to a pump/well/spring which is more than 10m from a septic source or other waste water disposal site (in other words, is safe to drink) from 37.31 per cent in 2003 to 37.46 per cent in 2005 (BPS 2006). However, the reality for Nina and her neighbors is that the local well has dried up, there is no pump, the spring they used is no longer available, and so they have to buy water from the houses with piped supply.

While Nina is aware of the immediate causes of increased water pollution, she has also heard about more distant problems which are reducing the volume and reliability of the water supply. The landscape north of Bandung, which is the water catchment for the whole city, has not been effectively protected by the government. More and more areas in Bandung have been developed as residential and business areas. Data from a local NGO, Dewan Pemerhati Kehutanan dan Lingkungan Tatar Sunda (DPKLTS), shows that in 2004 alone the city's residential area increased by 4,000 hectares (from 29.914 to 33.025 hectares), and the industrial areas increased by 100 hectares (from 2,356 to 2,478 hectares).

DPKLTS also reported that secondary forest around the north of Bandung has diminished from 39.349 hectares in 2001 to 5.54 hectares in 2007. This contributed to the huge land slide in April 2005.

Hearing women's voices

Ms Nina came to the meeting held by Palawa when she heard that Palawa and her community would discuss water and sanitation issues. She has been discussing the difficulty of getting clean water and sanitation with her neighbors for years but there has not been any significant changes. When she came to the meeting, she was surprised that her voice was heard. She said that usually in community meetings, the women sat at the back while their husbands and other men voiced their concerns and discussed solutions. In this meeting, however, both men's and women's problems were discussed.

When she came to the meeting, she was surprised that her voice was heard. ... usually in community meetings, the women sat at the back while their husbands and other men voiced their concerns and discussed solutions

It turned out that the women who have reproductive role and are the main carers in their families have been wanting to get drinking water closer to their homes, to reduce the number of hours spent collecting it and reduce expenditure on purchasing water. Nina noted that during the discussion, the men of the community kept on suggesting that the women should only be involved in preparing snacks for the meeting, but when the facilitator insisted on women's full participation, the whole community enjoyed the meeting and felt that the result of the discussion was better since the main users of water had voiced their needs and aspirations.

Palawa is a local NGO based in Bandung. They have been working in community development and environmental issues for the last two years. The chair and the deputy of Palawa have received training in gender mainstreaming and equality. They have ensured that women participate actively during planning and implementation of the program.

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Questions

1. What were the gendered impacts of the sale of land by the government?
2. Compare and contrast the role of women and men in meetings held regularly, and those held by Palawa. Learning from this case and your experience, how can we encourage poor women to express their opinions in public places?

5

Gendering water, empowering women

Gabrielle Groves

In 2002, Timor Leste became the world newest democracy after enduring 24 years of Indonesian occupation and over 400 years of Portuguese colonization. The impact of the past exploitation and the Indonesian military's scorched earth policy of 1999 during a referendum on independence, has had a lasting impact on the citizens, natural resources and infrastructure. Therefore, malnutrition and diseases, often water borne diseases due to lack of water supply and sanitation system are common.

Los Palos is the district center of Lautem district which is located in the far east of Timor Leste. Lautem area covers 11.6 percent of the nation and has a population of 57,453 (2004). In the District main center Los Palso live 13,350 people or 23 percent of Lautem district population. Los Palso in the last four years has experienced a 7.5 percent increase in population (ADB).

Gender and water in Timor Leste

Traditionally, the Timor Leste society follows rigid gender roles where women are responsible for household chores and men for outside work. Due to the prolonged war, there are many women-headed households and most women are engaged in some form of income-generating activity. Few women went to school and received an education before independence. Domestic and street violence are very high among the population traumatized by the violent struggle for independence.

Water use in Los Palos was divided by gender roles. Men used water for agriculture and horticulture and women used water to maintain the community and the household. Women were traditionally expected to collect water from wells and natural springs located as far as an hour's walk from their homes. The NGO, East Timor People's Action (ETPA) estimated that some women made this trip at least thrice a day. This was the case in the Malahara community until ETPA facilitated the creation of a piped community water tank. This project has not only decreased the time required for water collection but brought new skills into the community including administration, construction, project design and health care. These skills are now being utilized in other sectors for the benefit of the community and individual. Time and money is now available for other aspects of their life. Most of all, it empowered women to hold positions as both members and leaders at the community level and challenged traditional gender roles within the household through economic and educa-

tional empowerment.

The ETPA was created in 1999 by a group of local activists who wanted to protect and advocate equitable and sustainable development in their new nation — Timor Leste. ETPA believes in a grassroots approach to development to strengthen and reform district-level institutions and empower those who live there. Gender is a cross-cutting theme in all ETPA projects. Promoting gender equality not only as an ideology but as a reality in daily working situations in Timor is challenging.

The Malahara Community Project (MCP) was created after a pre-feasibility study by ETPA, in consultation with the community with funding from the Asian Development Bank. With a one-time investment from the ADB,the project is sustained and maintained by the community through

Water supply and sanitation statistics

TOILET AND WASTE DISPOSAL

- 47 per cent of households had a toilet with either cistern or pour flush.
- 29 per cent of households had a squat plate (dry).
- 24 per cent of households had no toilet at all.
- 58 per cent of toilets were external with no roof.
- 70 per cent of toilets were used by individual households; 30 per cent were shared
- Shared toilets were used by a maximum of 11 and an average of 3.4 families.
- Those without toilets traveled a maximum distance of 200m and an average of 50m. They used drains, rivers, fields/gardens or the forest in approximately equal numbers.

WATER SUPPLY

- 37 per cent obtain water from the public water supply system through either household connection, shared connection or public standpipe/tank.
- 51 per cent obtain water from the ground.
- 83 per cent of respondents' access water through shared facilities.
- Shared water supply facilities are used by a maximum of 84 and an average of 9.3 families.
- 85 per cent of respondents considered their water supply facilities to be poor or very poor.

Source: *Bi Hula Foundation Household Sanitation Survey in ADB Grant 8189-ETM Report*

user fees and labor. ETPA was only involved in the project for one year. The community was involved in the development of the project, choosing the appropriate system for implementation, scheduling construction and finally, the creation of the water user group association to maintain the water tank.

Planning gender into water projects

The project was launched with a pre-survey of the economic and social situation of the community by ETPA. Both women and men were consulted about the problems and expressed their concerns. In particular, concerns about water supply and sanitation sector were raised. ETPA then submitted a proposal to the ADB for funding. With approval from by the ADB, ETPA returned to the community.

At a general community meeting attended by both women and men, ETPA shared their findings and proposal. They asked the community to participate. Since women are the main water users, they felt comfortable sharing their ideas and concerns. Men also respected women's opinion in this matter. The purpose of this meeting was to set up the community working group through elections and determine, with the community, the monthly contribution in terms of labor and cash for maintenance. These contributions considered both gender division of labor and realistic household income capabilities. This was facilitated by an external gender expert from the Water Supply and Sanitation Department who helped the community to overcome issues that left women at a disadvantage.

Trainings

Several trainings were imparted over the course of the year. The trainings were conducted in the local language of Los Palos and not the national language Tetum. Councise educational materials printed in the local language covered a variety of issues from health and sanitation to water tank maintenance. The materials were placed around the community and near the water tank in poster form.

The pre-training included the newly-elected members of the community working group. They were trained in community leadership and membership, issues of construction and design, and technical aspects of water tank maintenance. Gender issues were also covered including how increased equality benefited community development.

After the community work group was trained, they facilitated community meetings along with ETPA. Therefore, the local context of the Malahara community was not lost in the development of project. The community then scheduled community members' contributions, in accordance with people's daily and seasonal work schedules.

After training, the project objective was to work with the community work group to create a monitoring system and jointly resolve upcoming problems. The post-training dealt with gender and health issues in depth. Women were also trained to teach the community about health. This was very effective because this task was traditionally carried out by women in Timor. Women as health educators emphasize the importance of their traditional role and elevate their status and voice in the community.

Once the project's training phases were completed, construction began using local resources, including clay and stone which was broken up by the community to create bricks. Both women and men contributed labor. Technical equipment such as tanks, pipes and other materials were brought in with external funding. ETPA supervised the entire process. While the tank was being built, the community was also trained in the maintenance of the tank and pipes.

Soon after implementation, the project brought increased benefits to the community. It is also an excellent example of how community empowerment benefits the community, specifically women. The project not only contributed to technical improvements of the water supply but also included capacity building of both women and men who gained new skills. These skills can be used in other areas increasing opportunities for employment in various sectors.

Women often have less access to formal education, although this is now changing with free public schooling. They have benefited greatly and are using the newly-acquired administrative and leadership skills and the time saved in gaining access to water to create small businesses. These busi-

nesses include selling vegetables from their gardens in local markets and/or bartering them for other products. Women's increased economic contribution in the household is also allowing them to have a greater role in household decisions which often extends into the community, including increased acceptance as members of water user groups. Women have also been promoted as leaders in healthcare. Although women in Timor Leste traditionally were involved in local healthcare and household management, their expertise and know how is now an avenue for empowerment.

The community is also motivated to sustain the project because it benefits their daily lives in terms of increased time availability, decreased monetary expenses including transportation cost incurred in traveling to collect or buy water. Most importantly, the community reports a healthier standard of living. Other spin-off projects including the cleaning up and urban beautification (planting flowers) have contributed to the development of the community. This also has potential for increasing tourism. These results have both a direct and an indirect impact that allows people to take charge and improve their own community as they see fit. They are in charge and can direct their community's sustainable development.

Challenges in gendering water

The project however was not without its challenges. After 24 years of occupation, Timor Leste is now struggling to develop. The struggle is due to the lack of both human and financial resources. During the Indonesian era many projects, including water supply and sanitation projects, were paid for by the Indonesian government who invested in Timor Leste to control the occupied areas. Therefore, community empowerment projects without monetary payments or government support are a new concept. The population of Timor Leste, one of Asia's poorest nations, must also deal with poverty. Often urban dwellers are faced with pressing issues of daily survival. Therefore convincing people to participate in the project without immediate monetary benefits is difficult. ETPA has learnt that education, training and involving the community in every step of the process will help overcome these problems.

Also traditionally, women did not hold many leadership positions in governance. Women themselves were often hesitant to take on these newly - allocated roles, although they were the main water users. Women are now more confident, especially after the training and experience with this project,

and are actively empowering themselves through participation and leadership not only in their traditional roles, but also within the community.

The project is sustainable and requires only a one-time investment from external sources. The local NGO ETPA also does not have much economic resources or human capital for project maintenance or monitoring and must be sustained by the community to work. The project will work if the community continues to work. And the increased benefits to the community and individuals so far have been the greatest source of motivation. It also provides a long-term vision of development that can be controlled by the community. Women and men now recognize the capacity of the individual in the community, regardless of gender, to control and improve their own lives.

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Questions

1. Explain how women's traditional roles were used in this project in a gender-sensitive manner.
2. Explain how this project allowed women to change their position in the household and community.
3. What are the challenges to gendering a water and sanitation project?

6

Advocating water rights

Maureen C. Pagaduan
Romano Antonio V. Wamil

During the early 1990s, most of the communities in Metro Manila were greatly affected by the water crisis. The Philippine government estimated that only 26 per cent of the population in Metro Manila had 24-hour water supply. In some areas, water was available for an average of 17 hours a day, but the low water pressure led to the contamination of pipelines making the water unsafe for consumption. Sewerage service was also a major problem as it reached only 8 per cent of the population in the metro.

These situations laid the foundation for the passage of the National Water Crisis Act of 1995 with privatization as its axis. The government reported that the privatization of water services has facilitated a major rehabilitation of water delivery systems. Gradually since 1997, the number of households with access to water has increased from 26 per cent to 95 per cent in Metro Manila.

Significantly, the rapid increase in urban population is directly proportional to the emergence of urban poor communities whose residents are mainly informal settlers on public or private lands. The 2000 census showed that of the 10.2 million people in Metro Manila, 55 per cent were regarded as urban poor. As informal residents, they are also excluded from the provision of basic services such as water. These residents end up sourcing water from public faucets far from their homes or resort to illegal connection to water pipelines. Women's reproductive burdens often include waiting for, carrying, and conserving precious water. These have a significant impact on their productive time and income, their own and their families' health and well-being, and their participation in community development.

With poverty as the context and privatization as the tool to transform water from a "common resource" to a "consumer product", water security emerges as a critical issue among the urban poor in the Philippines. And as more and more urban poor households resort to illegal connections, their health is at risk. The Department of Health reported in 1997 that most of the water-borne diseases common among urban poor, were caused by contamination through inadequate and unsafe water.

Sitio Palanas and Water and Sanitation Situation

Sitio Palanas is one of the many satellite informal settlements in Metro Manila. The area is located in Barangay VASRA in Quezon City with a

total land area of just 1.9 hectares. The land on which almost 500 households live is owned by the government. The residents of Sitio Palanas have experienced the perils of water crisis. Mercy Donor, 48, recalls her experience during the 1980s when the only source of water in the area was a deepwell. She and other women in the neighborhood would fetch water from the well. Water from the well was not safe for drinking so they only used it for bathing, laundry, flushing the toilet and cleaning the house. Drinking water had to be fetched from a faucet far from their homes.

When the residents organized a neighborhood association, they were able to set up a common faucet for the area through the Patubig sa Barangay (Water for the Villages) Project of the private concessionaire Manila Water Services, Inc. But the increasing population made it difficult for the residents to rely only on the common faucet. There came a time when Mercy had to wake up as early as 3:00 am to queue up for water. Water conflict among neighbors became inevitable.

Photo courtesy: Canlas, A. and Jacinto, J.

Water meters monitored water usage in each cluster and household

In 2001, Manila Waters installed a pipeline from which groups of 4 to 5 households can directly connect individual pipes. A mother meter for each cluster was provided to monitor the cluster's monthly consumption. A sub-meter was installed for each household.

Mercy stressed that even though water supply in the area has been greatly improved, the new problem facing the residents is their inability to pay the high rates billed by the water concessionaire. Even the installation of the pipes is very costly. In Mercy's case, her family spent Php 3,000.00 (USD 61.5) just for the pipe and their monthly water bill amounts to an average of Php 800.00 (USD 16.4). For her and other women who usually manage the family budget, this increases the economic pressure. Some housewives in Sitio Palanas now engage in informal work such as vending and laundry to earn extra income for the family. The Family Income and Expenditures Survey 2000 reported a 23.7 per cent increase in household spending for utilities including water. Household spending on water amounts to 13.8 billion pesos (USD 2.8 million) nationwide.

Recently, Mercy cancelled her water connection because their cluster's water consumption amounted to Php 10,000.00 (USD 205.00). All five families in the cluster cannot afford to raise such big amount. They initially

Mercy and her family are back to the days of fetching water from a common source

thought that maybe some of the residents illegally tapped onto their line, but eventually, they found out that there were cracks and holes in their pipes which caused water to leak or even gush out. The PVC pipes used were not durable, and cracked easily. With uncovered pipes carelessly installed along walkways, people stepped on them leading to cracks and holes.

Mercy and her family are back to the old days of fetching water from a common source. The main difference now is that they are paying Php 2.00 (USD 0.04) per container (5 gallons) of water whereas earlier it was free. Mercy's household now spends an average of 15 to 25pesos (USD 0.3 to 0.5) a day for their water, approximately Php 600.00 (USD 12.3) a month.

Plastic water pipes are laid along the drainage. They tend to crack and the water supplied is contaminated

Water-borne diseases such as diarrhea and cholera are also common in the area. Water gets contaminated because once the pipes crack, dirt and other contaminants easily get into the pipeline. These lines are not covered and worse, are located along the drainage or clogged waterways where household wastes are usually found. Mercy boils water to make it safe for drinking which raises her heating bill significantly. She does not use chlorine tablets as they are too expensive.

The family of five is only allowed one container of water each for bathing. She is worried that with summer their water consumption would double and so too the cost. To conserve water, she recycles water used for rinsing clothes and uses it in the toilet. This is a common practice among the households in the community.

Women's Centrality in Water Rights Advocacy

Mercy is also a community leader. She is a member of PIGLAS Kababaihan, a women's group with chapters in various urban poor communities in Metro Manila which aims to enhance women's capacities to initiate and manage community programs on education, health and water. Mercy and other women of PIGLAS realize that poverty and their water

problem are closely connected. Theirs, they believe, is a comprehensive strategy that will ultimately address their water and development needs.

The group is also part of a network advocating people's right to water through the Blue Drop Campaign convened by the Freedom from Debt Coalition, a local network of NGOs, people's organizations, activists and advocates addressing issues caused by privatization, particularly of basic services such as water.

FDC, through the Blue Drop Campaign, started organizing women, men, youth and other stakeholders in the community along the agenda of water rights. The objective was to form a community-based campaign against the privatization of water services. The campaign invokes the UN General Comment No. 15 to the International Convention on Economic, Social and Cultural Rights which states that the right to water is the most basic of all human rights (FDC, 2006). The organizers recognize the centrality of women in the advocacy work on water rights, as water for household needs is still considered the responsibility of women. This is true both in the rural and urban areas. In an evaluation of impact studies reported by the National Rural Women Network - Water Cluster (2003), it was found out that when programs on water are responsive to women's needs and capacities, the programs:

(a) reduce the time spent by women in getting water, thus giving more time for economic productivity;

(b) give women more time for other activities (e.g. income-generating activities), the needs of family members, or their own welfare and leisure;

(c) allow children, especially girls, to go to school because they won't be needed for water collection duties or to herd livestock to water sources;

(d) help reduce health risks and health costs;

(e) empower women (e.g. when project activities are linked to productive resources such as credit).

Mercy and other women in urban poor communities undergo education and training to further understand and analyze their current water situation. The women's group in Sitio Palanas, together with the other chapters of PIGLAS Kababaihan, actively participates in protest actions, dialogues, and coalition work.

Representatives from the different urban poor organizations discuss their water issues with the officials or representatives of the private water concessionaire Manila Water Services, Inc. Dialogues and consultations are also held with the city government. Education and training as advocacy strategy includes awareness building on water rights and community

issues, leadership development, capacity building on basic campaign planning, strategizing, and community organizing.

After a meeting, educational discussion or protest mobilization, Mercy shares her learnings with her neighbors, hoping that they may be motivated to join the organization and be advocates themselves. So far she has not had any success in this effort.

Sinasabihan ko sila na mas maganda kung buong Sitio Palanas ay sasama sa mga pakikipag-usap sa mga kinauukulan para maidulog ang aming problema sa tubig. Pero marami silang alibi. Interesado naman kaso laging wala raw silang panahon. (I told my neighbors that it would be better if all the residents of Sitio Palanas will be organized and collectively seek an audience with the authorities so that we may discuss our issues on water. But they always have alibi for not participating. They are interested but they always offer the excuse that they have other things to do.)

Women, Water and Technology

Mercy did not explicitly articulate her role as a technologist. However, she is more than just a consumer given her knowledge, awareness, and skills on the technical side of keeping water clean and safe to drink, keeping water accessible, monitoring consumption patterns, and improving the drainage and sewage system in the community. These are the basic technologies women in her community try to master in response to every day situations.

She noted that most of time, it is the woman in the household who keeps track of the bills and monitors water consumption. It is the woman who worries when a child gets sick of diarrhea caused by water contamination, therefore she sees to it that water is boiled or treated to make it safe and clean. And when pipes crack, she manages to bind the cracked pipe with rubber as replacing it with a new one is costly. While the technology is neither high-tech nor complicated, it is essential to ensure the health and safely of the family and community.

Their ability to exercise technical know-how about the immediate needs of every day water usage, management, and conservation opens possibilities for later engagements in hard or advanced water technologies such as plumbing, water treatment using treatment facilities or chemicals, and pipeline installation. Empowering poor women in the communities is not confined to enabling them to participate in decision-making concerning

access to and control over resources but also enabling them to use technologies appropriate to meet their needs, address their problems, and increase opportunities for productivity and personal growth.

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Questions

1. Privatization was used as a tool to ensure water supply for all. Has this been successful in Metro Manila? Why? Is there any gender difference in how people are affected by privatization of water supply services?
2. Explain women's strategies for water management in the slums of Metro Manila.
3. How do you think women's involvement in water supply services decision making will change if women are seen as technologists and not as consumers?

7

Inclusion of women for the benefit of all

Vu Phuong Ly

Vietnam has a population of more than 85 million people, 53 per cent of them women. The political economy of Vietnam is changing, and these changes have major implications for the lives and livelihoods of Vietnamese women and men (UNDP, 2006). Women in Vietnam have a long tradition of participating actively in the labor force. According to the 1993 Vietnam Living Standards Survey, 90 per cent of the adult women and men had participated in the workforce in 1992. More recent surveys document nearly identical rates of labor force participation for women and men. However, it is evident that men tend to dominate the higher status, better-paid forms of employment with greater scope for decision-making, while women are concentrated in low paid, less prestigious forms of work with little scope for skill development or promotion. Men hold the overwhelming majority of leadership positions and professional and technically-qualified jobs. Women dominate lower-level services and unskilled jobs (UNDP, 2006).

After the introduction of economic reforms in 1986, craft and trade activities saw a revival. Villages took up such specialized occupations to improve livelihoods. Grouped together as handicrafts and small craft industry, these occupations have grown on par with other industries since then. Such craft-based villages had all but disappeared during the co-operative times. According to government data, craft villages showed growth rates (measured by the value of output) of roughly 8 per cent per year. These industrial villages largely use recycled materials and generate employment locally. However, the high-level of production and income are accompanied by an increase in the volume of waste, posing risks to human health and the environment. Village ponds have been filled to build houses and factories.

The town of small enterprises

In 2004, 58 craft villages and village industry clusters in Bac Ninh province employed roughly around 40,000 people. There are village industry clusters dominated by rolled steel, wood furniture, paper, copper casting and aluminium casting. Man Xa town is famous for aluminum and metal processing, the traditional skill of the local people, which employs about 30 per cent of the town's population. Situated in Yen Phong district, it is one of the five such towns in Bac Ninh province.

Traditional skills are now harnessed through small- and micro-enterprises owned by men. Men get credit and loans easily to set up busi-

nesses as land certificates are usually in the name of the men who are heads of households. Women are listed as head of household only after the husband's death. Women contribute as employees and assistants to their husbands' and other family members' enterprises. Since aluminum and metal processing are classified as heavy industry, men seem to be more active and knowledgeable in this field.

There are several reasons for women's lower status in the small- and micro-scale metal processing industry. Traditionally, the Vietnamese believe that men are stronger than women and hence heavy work is the responsibility of men. Similarly, men are considered smarter and hence they are in charge of activities which have higher commercial value, while women are in charge of activities of lower commercial value. Since the local industry does not offer good employment opportunities, young

Traditionally, the Vietnamese believe that men are stronger than women and hence heavy work is the responsibility of men. Men are also considered smarter

women migrate out to look for job outside, but young men can get good jobs within the community. Only women above 40 remain in the village. These women did not receive any opportunity for higher education or vocational training, and thus are not equipped to start any enterprises in the local area. Men, however, were sent for such training and hence had better access to knowledge and technology.

Women in Man Xa town work for their household metal processing micro-enterprises as employees or assist their husbands in production. Usually, it is only women who scan the scrap materials collected from scrap-iron dealers, burn and laminate aluminum and other metals. This work takes long time and requires patience. Accidents are common. Men are employed to burn and laminate aluminum and other metals. Working in small- and micro-scale metal processing industry is very dangerous with polluted air, noise and high temperatures. However, women and men do not wear protective clothing and are not aware of the dangers of a polluted working environment. Women's income is much lower than that of the men. Most micro-enterprises are family business, hence the wife's salary is not paid nor is the market value of her labor calculated. Women

Most micro-enterprises are family business, hence the wife's salary is not paid nor is the market value of her labor calculated

employees are usually assigned manual work, and their wages are much lower than that of male employees.

In this socio-cultural context, a local NGO implemented a project to raise awareness about safe working conditions and air pollution in the community. It was a two-year project. After two years, it was expected that the project would lead to higher awareness about safe working conditions and environmental management in the community.

Water in Man Xa town

The development of metal processing village industry clusters in Man Xa town has brought in urbanization and economic development. Most enterprises run on limited capital investment, and they cannot afford to be located in industrial areas with sufficient infrastructure. Thus, they are located in residential areas and have been undertaken without proper planning and sufficient investment. Most machines are old and industrial waste is rarely treated. The cleaning capacity of the natural ecosystem is limited and this has led to serious environmental problems.

One of the critical issues is wastewater management and sanitation. In the 1980s, 95 per cent of the households used water from wells of 10-20 meters deep. Wells are now typically 90-95 meters deep. All water demands in Man Xa, for living, drinking and industrial uses, have been met by surface or ground water. Pollution resulting from household and industrial wastewater in particular and all kinds of waste in general has led to the pollution of surface water and ground water. This has affected the health of the local people, especially women and children, who seem to be more sensitive to unsanitary conditions (Huong, 2004). Data showed that nearly 70 per cent of the people in the town have fungus growth in their feet, while 56 per cent of women coming to the clinic suffered from gynecological problems, that doctors suspect are caused by not being able to clean themselves because of lack of clean water.

Man Xa town has no piped water system and no system to manage the

water resources. Three government officers, all men, are responsible for clean water supply, including laying of pipelines and meters. However, water is only provided to the clinic in the town and not to the people. Decisions regarding clean water use and management are made by the town's People Committee, which includes only one woman, the head of the Women's Group.

Project planning

Before the project implementation, a survey was carried out to assess the pollution levels, working conditions and environment awareness of the local people. This was followed by a workshop to discuss project activities and disseminate project information widely. Three representatives of the town were invited to talk about environmental pollution and plan a piped water system for the town -- two men who were representatives of the people's committee and a woman who was the head of the women's group. The talk was moderated by a project officer, a woman. The two men spoke extensively, while the women's representative was ignored.

After a lengthy discussion, one of the female participants pointed out that the woman had been trying to speak for some time and had been ignored. The moderator said it was time to bring the debate to an end, but added, "I think it is nice that a woman wants to participate. Why don't we listen to her too?" The head of the women's group finally spoke. She was the chair of the panel and knew the subject matter better than the other two male representatives. She delivered an excellent and fact-filled speech which was well-received by the public.

Despite this speech and the positive response to it, the project continued to ignore gender concerns. With no understanding of the gendered aspects of water management in the community, the project invited representatives from local authorities, and heads of households to plan activities including: (1) an awareness-raising course on environmental safety and safe working conditions, (2) field visits to other towns for learning and sharing experiences about managing water resources; and (3) raise employees' awareness about working conditions and the environment. Most of the trainings were organized in the afternoon, and participants were mostly employers. Consequently, women were unable to attend and participate.

Women, as employees, could not participate due to the double burden of work and household chores. Women participated in large numbers in

cleaning the community water sources, an activity organized by the Women's Union over the weekends. In this project, women participated in doing the actual cleaning work, while men supervised, planned and monitored the NGO-initiated project.

The employers were aware of the need to improve working conditions, but did not want to invest money. Employees, both women and men, were not aware of their rights to safe working conditions as they did not attend the trainings. They did not demand safe working conditions or protective clothing from their employers.

The project also provided gender training to raise awareness on gender issues and the community's role in protecting the environment. Most of participants in these trainings were women. Male representatives of the community attended only the opening sessions. Further, the training introduced gender concepts, but did not link it with the environment. It did not highlight gender issues in the environment nor women's increased vulnerability to poor working conditions. The benefits of the gender training were therefore minimal.

After the two years of implementation, women clean the town as free community labor, while men have not changed their roles with regard to the environment. The town water continues to be polluted since the industrial wastewater is still not treated. As the head of a women's group said:

> Our sisters have become busier since the project started. We have more work to do. Even the streets and our communities have become cleaner. But I think it would be better if the whole community contributes to this work, not just women. And these activities again emphasize that the cleaning work should be done by women, and we — women — want to change this. Men are not interested in the community work because it does not bring any money to them.

Questions:

1. How has the pollution from industry affected women negatively?
2. What are the needs of women? How were women's needs and opinions being recognized? Why do you think it was not taken into consideration in the implementation of the project?
3. How could this project be planned more gender-sensitively? Give three instances.

SECTION: 4
GENDER IN SOLID WASTE MANAGEMENT

An overview

Solid waste management(SWM) is a very sensitive issue in urban areas. Wide disparities in income, livelihoods and living standards among people in urban areas lead to unequal services in terms of solid waste management and related health services.

Most projects relating to solid waste management in the urban environment relate to the technology and management of solid waste. Reduce, reuse and recycle are the three major approaches/strategies in SWM. Additionally there are various high technologies and community-level organizing related to these essential strategies.

Women are seen mainly as producers of waste as well as household level managers of solid waste in the whole process. A gender perspective allows us to review SWM priorities, technologies and management differently in order to not only make SWM work better, but also empower women in the process.

As the case studies that follow show, women's roles in community-based SWM are seen in three major roles:

(1) solid waste managers at the household and community level;

(2) wastepickers and recycling agents/business person;

(3) community leaders to organize SWM.

Women and men have different vulnerabilities to exposure to waste, and different felt needs for better management of SW, mainly because of the traditional division of labor at the household and community level. Women can be more motivated to improve waste management because of their roles in domestic household waste management. However, because of this stereotyped role, often community-level voluntary activities for SWM are dumped onto women, without due recognition and resources. This does not empower women, and on the contrary, can even over burden them.

The following case studies give us food for thought with regard to the gender needs in SWM, and how this opportunity could be utilized to empower women. In which situation were women able to take active leadership roles in the whole process of SWM to serve their own and the community's needs? What has transformed gender relations?

8

When garbage collection is dangerous

Gabrielle Groves

Timor Leste has experienced an unprecedented rate of urbanization driven by national and international labor migration in both the nation's capital and many district urban centers since independence in 1999.

In the case of Timor Leste, the urban poor, both women and men, subsidize the government's inadequate solid waste management programs with their unpaid labor. Also the burning of waste, which is a common practice in Timor Leste, contributes to contamination of the environment and furthers the risks of health problems. It could also negatively affect Timor Leste's tourism sector, which has the potential to bring employment and money the emerging nation.

The Current Situation in Timor Leste

> Pollution and the lack of waste management pose significant problems in the urban areas of East Timor. Consequently, they also pose human health risks as well as a threat to marine ecosystems and species in nearby marine areas. Dili has a very limited sewerage system and an inadequate system for the collection and disposal of solid waste. Poor waste management has resulted in the pollution of groundwater, which is the source of drinking water for many of the people living in Dili. Litter is a substantial problem, particularly in the urban areas, with plastic and other materials usually being washed into the ocean during storms, where they represent a hazard to marine species.
>
> Source: National Development Plan of Timor Leste 2002, section13.11

Five years the situation is marginall letter. Waste collection and disposal services in Timor Leste's capital Dili are available to 60 percent of the population, up from 49 percent in 2003 (Govt. of East Timor 2006c). These take the form of bunkers, large concrete boxes, in which waste can be deposited. Located within 200 meters of households in urban centers, they are collected weekly and transported to a solid waste disposal facility located in Tibar, approximately 10 km west of Dili.

The bunkers were built to prevent domestic animals from gaining access to waste. About 71 percent of the households in urban areas keep animals in their yards (Govt of East Timor, 2006a). The bunkers are large enough to store waste without creating a health risk until collected.

However, the design of the bunkers has proved inadequate in the face of rapid urbanization. The distance of the bunkers from the houses is a security issue for those disposing the waste, given the lack of law enforcement in Timor Leste. Old and sick people lack the strength to carry and deposit the waste in the large containers. Absence of local regulation has led to service charges being introduced in many urban areas for waste collection. Private companies are collecting waste and charging service fees from urban residents.

PIC: GABRIELLE GROVES

This photo shows the concrete bunkers used in Dili to collect waste. Often the waste remains uncollected and builds up over time. The build-up then flows into the canals which drain into the ocean.

Since 2005, the political crisis in Timor Leste has been accompanied by gang violence and displacement of the urban population. Due to the violence, services are often irregular. All conflicts have gender-specific dimensions and exacerbate existing inequalities. A large number of people live in camps for the internally displaced persons (IDP).

Within most IDP camps, women continue to be responsible for the management of household waste. However, the irregular services along with the distance to the waste dumps (no new bunkers have been placed near IDP camps) has created vulnerabilities for those in the camps. Also, many men have left their families, fearing for their safety, because men are targeted during gang violence. Women have to walk large distances unaccompanied to deposit solid waste. Enroute, they face the risk of harassment, sexual attacks and of being caught in cross-fire. Hence waste is often neither deposited nor burnt, creating a health hazard in the IDP camps. However, this issue has not been studied in detail.

> As with other landfills in Timor-Leste, Tibar (solid waste disposal facility) is inadequately designed and poorly managed, and the site may be a pollution threat to nearby waterways and groundwater. There are no formal systems for collecting and disposing of waste outside of Dili-most waste ultimately finds its way into the rivers and the sea, and so is a source of pollution. Even in Dili, much waste is not collected, lying on the streets and in dried up streams, before being carried to the sea with the rains. This waste provides a breeding ground for pests and disease. (Government of East Timor, 2006c)

Although the government acknowledges that the current situation is causing further environmental degradation, in particular water contamina-

tion, they say that money and human resources pose serious constraints to improve services. The lack of political will and environmental consciousness, both in the Government and among the general public, is also problomatic. Hence, investment and participation in projects/activities such as recycling plastics and other raw materials is very low.

Many of the existing government projects are very technical and out of reach of the average Timorese although community participation and consultation in their national plans. The projects plans are published in English or Portuguese, often by international consultants (who cost a lot further draining funding from project implementation) that people cannot read. Translated documents are poorly written and the information is not disseminated to the general population. Further, illiteracy, low income, limited access to credit, disempowerment in decision-making and "no voice" in public forums constrain women's active involvement in designing convenient, affordable community-managed water services and in selecting suitable sanitary options.

A Household Sanitation Survey conducted in 2003 by a local NGO Bia Hula Foundation working in the water and sanitation sector confirmed that waste management is in urgent need of improvement in the urban centers.

- 49 per cent of houses in Dili had poor solid waste conditions.
- 15 per cent of respondents disposed of solid waste in bunkers, 17 per cent used the street, drain or river for solid waste, and 60 per cent burned or buried solid waste.
- 83 per cent of the respondents considered their waste supply facilities to be poor or very poor.

Source: Bi Hula Foundation Household Sanitation Survey in ADB Grant 8189-ETM Report

Proposed Triangle Generation Humanitaire (TGH) Plastic Recycling Project

The plastic recycling project is a program to collect and recycle empty plastic bottles. It aims to raise awareness about environmental degradation and its impact on public health. It teaches people how in the community, schools, NGOs and the government administration can work towards preserving the environment through individual and collective action.

A large amount of rubbish, especially the plastic water bottles, are still found strewn on the streets, in the rivers and on the beaches. This situa-

A large amount of rubbish, especially the plastic water bottles, are still found strewn on the streets, in the rivers and on the beaches. This is aggravated by a lack of proper disposal mechanisms...

tion is aggravated by a lack of proper disposal mechanisms and low environmental consciousness. These plastic water bottles have a big impact on the environment, already there are millions of empty bottles polluting the country's environment. As plastics are made from petroleum products, they don't break down easily in landfills and incineration produces air pollution with particularly noxious particulates.

The project has the dual focus:

- to reduce the pollution caused by empty plastic bottles improve the SWM system in Dili,and promote environmental consciousness;
- to create sustainable employment

The aim is to formulate of a feasible action plan that can be implemented with the resources, financial and human, available in Timor Leste. The stress is placed on practicality, cost -effectiveness, service efficiency, income-generation and capacity development for the local population. The project however has not received adequate funding or support from the government and/or international community and is still awaiting implementation.

Source: Triangle Generation Humanitaire (France) Plastic Recycling Project 'Draft', Timor Leste, 2006.

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Questions

1. What are the different problems women and men face in the absence of solid waste management services?
2. What are the obstacles for poor women and men in accessing government services?
3. How do women and men manage waste in East Timor now? What is the division of labor in waste management?

9

A home for ragpickers

Hor Sophea

As of 2005, Cambodia was home to 6,647,000 people, 52 per cent of them women. An estimated 20 per cent of the population lives in Phnom Penh, the capital, while the rest live in rural areas. The urban area in the country has been growing at a rate of 8 per cent. Gender equality is the constitutional provision of the Royal Government of Cambodia (RGC). The RGC has made efforts to promote gender equality and improve the status of women. Despite this, women's status remains an area of concern in many sectors.

In the country, gender issues in urban environmental management have not been identified and reported either by the government or by civil society organizations. Gender discourses are relatively new and contemporary in Phnom Penh, more so in urban environment management. Women's differentiated needs, interests, scopes and limitations in relation with subsectors such as water and sanitation, solid waste and air pollution have so far not been considered or addressed in the municipal plan, policy, program and service delivery.

Phnom Penh is facing various challenges due to rapid population growth, including inadequate and dilapidated infrastructure and services. One of the main problems is the growing solid waste. The increasing volume of waste generated by the city's population and the inadequacies in the existing waste management system, including under-financing and weak management capacity, together exacerbate the problem. Waste is often thrown along the roadsides, on vacant land and into drainage canals within the city, creating further public health and environmental problems for the city, its authorities and its residents.

Although garbage continues to be a problem in Phnom Penh, there are signs of improvement as the collection systems within the city have been privatized, and the contract is lucrative. The waste-pickers – the lowest on the social ladder – extend throughout the city. A number of NGOs are working with this group to support them with simple medical care, education, and social services.

Gender issues in solid waste

On many streets of Phnom Penh, garbage collection trucks are rarely seen but the city's waste pickers, mostly women, are common at all sites. Women are socially responsible for cleaning, washing and managing waste, and hence Cambodians see waste picking as an extension of women's social roles. Another reason for the higher rate of women waste pickers in

the city is the higher rate of poverty among the women and lack of skills that will make them employable in other sectors, especially the formal sector. These pickers go from door to door to collect reusable or recyclable items. The waste pickers are informal workers and are regarded as unskilled workers entitled to low wages. Their jobs are not secure, due to the attitude of some local authorities and the lack of appropriate schemes to support them. This often leads to abuse, corruption and exploitation. They are also likely to be exposed to various diseases while handling waste.

Waste pickers who reach at a site first and those who spend more time on the streets can collect more waste of better quality and consequently earn more. Women waste pickers cannot compete with their male counterparts because they have to complete some household chores before they leave for waste picking. They also have to return home early to fulfill their gendered roles and responsibilities in the family. Free from such responsibility towards the household, men tend to leave home earlier, and stay out longer than women.

In the field, men waste pickers often chase women out when they attempt to collect waste from a fresh dump. Men do this because they see women as inferior given the gendered power relations in society. Women waste pickers are also more vulnerable to threats and abuse by people living in houses when they attempt to pick up household waste, particularly early in the morning.

Development and recycling

Community Sanitation And Recycling Organization (CSARO), a leading NGO in Phnom Penh, carries out projects and programs on solid waste management and socio-economic development for urban poor communities. This case study documents a project of CSARO. CSARO works in areas where most urban poor reside. It maintains two centers namely Waste Picker Development Center (WPDC) and Waste Recycling Development Center (WRDC). The first provides skill trainings and coordinates self-help activities for the socio-economic betterment of the waste

Waste pickers and their families are provided with sanitation facilities, free working spaces, skill training, basic education and literacy

pickers, while the latter is a waste-processing center to separate organic and recyclable materials from solid waste. Through these two centers, CSARO has been able to recognize and establish that waste picking is also a decent occupation.

Established in 1998, the WPDC works to improve the quality of life of waste pickers. This program is designed to promote the social and economic situation of waste pickers. Waste pickers and their families are provided with sanitation facilities, free working spaces, skill training, basic education and literacy. Waste pickers can use facilities such as toilet, drinking water, shower, childcare and schooling for children. They can also use the space to sort and process recyclable materials. Without support from the center, it would be very hard for waste pickers to maintain basic health and hygiene, and improve their income from waste picking. The WPDC also provides general health care and first aid services and skills to waste pickers and their families. It provides formal education to the children and literacy skills to interested adult waste pickers. It also offers a safe place for the children to stay while the parents are out picking waste.

To promote the social and economic condition of waste pickers, WPDC staff work with them to form Self Help Groups (SHGs). Each group consists of seven members and each group elects its leaders (Group Leader, Deputy and Treasurer). Groups set their own goals and strategies to run the group. The WPDC provides training to the groups on a range of areas which include group organization, leadership, recycling (separation, classification and recycling into different products such as compost, handicrafts), gender awareness, personal health and hygiene, occupational safety, etc. After depositing a certain amount of money, they can apply for a loan for income-generating activities. It is similar to the conventional micro-credit program. Representatives of all SHGs meet every month at the WPDC to improve networking and discuss common issues such as how to organize saving groups, open a bank account, participate in waste collection contracts, and expand recycling activities.

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1 The exchange rate was 4100 Riel equal to 1USD at the time of interview for this case study.

CSARO runs its program on leased land. This land is centrally located and offers easy access to waste pickers who move around the city. But after the current contract expires, CSARO has to shift to a new location on the outskirts of the city. This will be disadvantageous for the waste pickers, especially women, in terms of using the benefits it offers them.

Both women and men waste pickers access the services and benefits offered by CSARO. But gender division in the use of benefits is explicit. For example, men use the benefits and services of CSARO to make compost from the waste, while women waste pickers produce handicrafts from recycled waste. This gender division in the use of service and benefits is not determined by the organization, but by the waste pickers themselves. It is in line with the social roles of women and men.

Cheam Yan in WRDC separates waste

Cheam Yan is 50. She has completed her primary education. She is the mother of seven children. Cheam works in a recycling program – a project of CSARO managed by Waste Picker Development Center (WPDC). She is from Kampong Speu province. She has been living in Phnom Penh with her children and spouse since 2001. Her husband became sick when they were living in Kampong Speu. She sold off her house, land and all belongings for his medical treatment. After this money was spent, she incurred loans at high interest from neighbors to continue treatment. Homeless and landless, the family was soon deep in debt. She badly needed to earn more and more income to repay the loan. But there were limited income-earning opportunities in the province as her family had sold their agricultural land. With no alternatives, she and her family moved to Phnom Penh in 2001.

When she moved to Phnom Penh, she did not know how to make living in the new environment. Then she discovered a new occupation for the family's survival – pick up waste and sell it to the brokers. This was the only income-generating occupation available to her. In Phnom Penh, households usually place their waste in front of their houses (along the road) and sometime in the day or at night, the city authority collects the waste for dumping. Ms. Cheam and her children started collecting household waste before the city authority collected it for dumping. She rented a house in a squatter area near a landfill in Stung Meanchy district. Ms.

Cheam and her children moved around the city to collect waste. They spent all day and night to collect waste. Altogether, they could hardly earn 10,000 Riel[1] a day. They used a sack and an iron stick to collect the waste. They were not concerned or aware about their health vulnerability (caused from exposure to waste) or any safety measure. They could not have a bath, use toilets, and lacked basic personal hygiene and sanitation as they were on move always. Sometimes, people chased them away, particularly when they went to collect waste from households early in the morning. There is a belief that if someone collects waste from the house early in the morning, it brings bad luck for the family.

From other waste pickers, they came to know about CSARO, its welfare programs for waste pickers, activities of Waste Picker Development Center (WPDC), and WRDC. Soon, Ms. Cheam and her husband joined CSARO. Ms. Cheam became a member of WPDC and her husband became a member of WRDC.

Cheam Yan in WRDC separates waste

Ms. Cheam runs a self-help group and serves as the group leader. When she became the group leader, Ms. Cheam was very scared as she does not have any education. But gradually, she gained the confidence and skills to manage the group. Ms. Cheam feels better off and comfortable after she joined CSARO. CSARO provides bath and toilet facilities for waste pickers as and when they need, and has hence become a relaxation and access point for waste pickers. CSARO also provides day-care services and schooling to the children of women waste pickers, medical treatment for sick family members, and breakfast for the school children. Waste pickers can share their problems with each other when they meet in CSARO. The WPDC gives them an opportunity to recycle waste to produce value-added products instead of selling off the raw waste. It also provides the skill training, networking and marketing facilities to sell the recycled products. Ms. Cheam avails of all these facilities and services of CSARO.

Since she joined CSARO, Ms. Cheam has attended many skill and management trainings organized by WPDC. She has participated in the program management and manufacture of handicrafts supported by WPDC. To gain practical skills on solid waste management and recycling of waste from other countries, Ms. Cheam has also visited foreign countries. She has been to India to improve her experience and during this trip, she had

He comes back from WRDC, gets drunk and makes problems at home. Most days, he beats me. I am always patient. I never reply back to him. I want to divorce him...

the opportunity to see people living abroad. She has also traveled with CSARO on an exposure trip to many provinces in Cambodia. She has learnt good practices, and gained confidence in to her skills and the potential solid waste. This has been possible due to her participation in the solid waste management program of CSARO.

Now she earns around 100 USD a month from waste and handicrafts (recycled products). With this increased income, she can rent a better house for living, spend more money for personal hygiene, sanitation and good food. Now her children go to school. She is happy with her work.

Ms. Cheam leaves her home and reaches the center every day at 5 am. Then she prepares the sack and starts her rounds of the city to collect waste. At around 10-11 am, she returns to the center for some rest, a bath and some refreshment. In the afternoon, she starts segregating the waste for recycling. Sometimes, she spends her nights sorting out the waste for recycling. WPDC is like a home to her where she can relax, keep the collected materials and her personal belongings. She can meet friends, share her problems and enjoy working with them. She is aware of health and safety issues and takes precaution while working.

Through the WPDC program, she has developed skill and knowledge in first aid techniques, hygiene and sanitation practices, safe sex, family planning, identifying dangerous hazardous items, social issues that girls and women face and the benefit of team-work. Above all of these, she has developed leadership skill, and a passon for making handicrafts. Currently, she is not only a team leader of waste pickers SHG, she also teaches handicrafts to new members.

Even though, Ms Cheam enjoys working with WPDC, she has many responsibilities in her household. Daily workload has increased after her participation in the WPDC. She has to do all the household chores after returning from WPDC around 5 pm. She says,

> I have a husband ,but it seems like I'm a widow because my husband never thinks or helps me in doing household work

and taking care of children. He is also a SHG member of WRDC; he has learnt how to make compost. He can earn money by making compost. But he does not do this to support the family. Every evening, he comes back from WRDC, gets drunk and makes problems at home. Most days, he beats me. I am always patient. I want to divorce him, but he does not agree. I also think my children should not hear the stigma of being fatherless. So every day, I try hard to manage my household income, work and household chores. In the morning, when I meet other friends in WPDC, I feel good. I try to forget everything and enjoy working with my friends. I try to change my husband's attitude everyday, but cannot. If he stops drinking, it will be good. How can I stop him from drinking?

Through this case study, it is clear that by setting up a safe center, establishing the SHG, skill training, personal safety and hygiene, and other linkages, women waste pickers have become the prime income-earners in their family. Their personal well-being has improved, and they lead better lives. Through SHGs, many women like Ms. Cheam have come together to realize their potential and demonstrate their leadership skills through and in waste management. But the household gender relations, particularly their bargaining position in household conflicts (with their husband) remains unchanged. Although women are economically independent, they are unlikely to challenge patriarchy because of the social stigma attached to single women.

Questions

1. What is the special difficulty that women face in being waste pickers?
2. What are the benefits that women waste pickers obtain through this project? Is it different from men waste pickers?
3. What is the difficulty women have in changing gender relations inside the household? Do you think the project will be able to help her to be empowered enough to overcome her difficulty at home? How?

10

From waste to manure

Fe Quanico Salcedo

It is a common sight in the San Jose Trade Town to see children playing around if not helping to sell goods. Another interesting sight is an "aboy-aboy"[1] hanging in the stalls. Local authorities do not encourage such practises, but neither can they ban them as vendors in the San Jose Trade Town, especially in the vegetable section, are mainly women (81 per cent). These women believe that, it is also their responsibility to take care of the children while also earning their livelihood.



Most of these women prefer to bring their children to the market rather than leave them in the care of somebody else. The Antique Provincial Social Welfare and Development Office did a rapid assessment among women vendors to set up a child-minding center. The women said they would prefer to let their children play or sleep in the "aboy-aboy" among the rotting vegetables, rather than put them in the Center. The absence of solid waste management in the public market renders women and children vulnerable to health problems.

> I have been selling for the past 30 years, since I was 17 years old, in the old public market and in the new trade town of San Jose de Buenavista. I start my day at the market everyday at 5:00 a.m. and end at 5:00 p.m. All my six children have been with me in my five to five routine in the market.
>
> — Editha, 47 years old, vendor

Solid Waste Management in the Trade Town

San Jose de Buenavista is the capital of Antique province, in the Western Visayas Region of the Philippines. As a capital town, it is classi-

1 A roll of cloth that hangs from the ceiling with opening at both sides. The baby to sleeps in this cloth cradle.

fied as an urban area. It has a population of 48,000, 49 per cent women and 51 per cent men. Although, it is the second smallest municipality in the province in terms of land area, eleven of its 28 barangays exceeded the provincial average of 1,513 residents per local village. The population doubles during the day due to a large number of traders and visitors.

This influx of working and transacting population during the day brings a deluge of waste as well. Most waste comes from the commercial and market areas. The chart below captures the increasing volume of solid waste generated in San Jose over the last five years.

In addition to being the provincial center for education, San Jose is also the trade and commerce capital of Antique. This fact is reflected in the populace's source of income. Farming and fishing remain the major sources, though a significant number of people earn an income from vending. Farming and fishing are male-dominated, while trading/vending are women-dominated. Of the people engaged in vending vegetables, fruits and fish, 78 per cent are women, comprising 43 per cent of the women who form the productive labor force. Most of these women do their businesses in San Jose Trade Town.

The San Jose Trade Town is about 1.5 kilometers from the town center and is located in Funda-Dalipe village. It is also known as the municipal wet market as fish, vegetables and fruits are sold here. It also hosts a cluster of fastfood shops. The Participatory Rural Appraisal with Gender (PRAGEN) conducted in the area indicated that garbage disposal in the wet market is a major problem. Residents in the vicinity complained "of the unhealthy condition". Notably, Funda-Dalipe residents are also vendors in the trade town. Residents, mostly women, in six out of the seven sub-villages are into vending to augment the family income.

As vendors, women spend almost twelve hours a day working in the market. Their incomes however are not formally recognized by the family. Most of them sell fruits and vegetables. This entails peeling, paring, skinning, stripping, trimming, or cutting fruits and vegetables so that they are ready to use when purchased by the customers. Thus, more biodegradable wastes are generated from the vegetable section.

It is seen that solid waste management problem in San Jose Trade Town affects women according to the roles they play as: 1) vendors; 2) housekeepers – whose responsibility includes buying food, cooking, family

As vendors, women spend almost twelve hours a day working in the market daily with their children

health and managing household wastes; and, 3) members of the community where the trade town is situated and of the whole municipality where health and sanitation are seen as women's primary responsibility.

"The need for proper solid waste management has become apparent and pressing in the light of environmental degradation and the ill-effects of improperly managed wastes on human health." San Jose de Buenavista Ecological SWM Plan

> Women have much at stake in solid waste management in the trade town. The growing volume of waste if uncollected will negatively affect the health and well-being of women vendors as they spend 12 hours there daily with their children. Women who regularly do the household shopping and women in the village will also be affected as they are responsible and accountable for household health and sanitation.

San Jose Trade Town presently houses the wet market and the jeepneys, tricycles and bus terminals. It was inaugurated on December 8, 1998 and public acceptance of the transfer from the old wet market site to its current location took sometime.

A clean and sanitary market would encourage more people to travel through the town. It would also entice more buyers. Less market patronage would negatively affect women who are the market's primary service providers. Thus, the importance of solid waste management in the trade town is quite far reaching.

The PRAGEN result of Barangay Funda-Dalipe showed that women's productive activity is centered on selling and vending. With the loss of this opportunity to sell in the market, women would have to do odd jobs like washing clothes or becoming unskilled laborers with low wages. Moreover, women from the fishing community selling their husbands' catch in the trade town are more vulnerable as they have to sell the day's catch around the Business Park. This is another public market intended for dry goods, which is located in the heart of the Central Business District. Since San Jose has passed a resolution banning hawkers in the San Jose Business

Park, getting caught would result in fines and/or imprisonment for the women.

A non-viable and unpopular trade town due to solid waste problems would result in the economic displacement of women as well as a loss of local government revenue that could be used for socio-economic projects benefiting women and men.

New sights

The Municipal Government of San Jose de Buenavista recognized the importance of managing solid waste in the trade town. This was one of the major issues that came out when the municipal government personnel assessed the operation of the trade town to strategize on increasing its viability and profitability. With the help of the Philippines-Canada Local Government Support Program (LGSP), a Solid Waste Management planning and programming activity was done in 2002. One of the strategic actions identified was to pilot Ecological Solid Waste Management (ESWM) in the trade town. Today, the Material Recovery Facility, Eco Garden and the Ecological SWM Learning Resource Center are the support projects for the San Jose de Buenavista Trade Town.

The SWM efforts in the trade town were consolidated and systematically organized into the ESWM Learning Resource Center. The purpose was to showcase various ESWM technologies and practices that the communities could replicate, while at the same time managing the trade town's solid wastes. The Resource Center has four major phases from compost-

Pic courtesy: *Trekking the Good Local Terrain: The LGSP Capacity Development Way*

Flerinia Barayoga, popularly known as Manang Cacay, is a member of the San Jose Vendors Association. She is the Coordinator of the vegetable section of the San Jose Trade Center. She plays an important role as a spokesperson, articulating market issues and promoting good rapport between the vendors and the LGU.

ing to showcasing of urban garden models.

Market waste collection is done by seven permanent staff (men) of the Municipal Economic and Enterprise Office (MEEO). Collections are scheduled in the morning and afternoon. Initially, there were receptacles for biodegradable and non-biodegradable wastes in strategic locations in the market. However, it was observed that once garbage is in the receptacles, there was no way to check whether proper segregation was done. Garbage collectors were faced with task of rummaging through the wastes to segregate it before composting. This increased the vulnerability of the garbage collectors (men) to health hazards.

The system was therefore changed. The receptacles were removed and all vendors placed their wastes in plastic bags, sacks or big bamboo baskets where collectors can see whether segregation was done. The policy is "no segregation, no collection". The vendors are aware of this and have been cooperating well with the scheme. However, there is still a need to continuously educate the public on waste segregation. For the public, the MEEO provided separate sacks for degradable and non-degradable wastes.

Women vendors feel that having the MEEO in the trade town is advantageous to them. They can easily air their grievances when waste is not col-

lected as scheduled or waste is overflowing and warrants an additional schedule for collection. Meanwhile, the MEEO has found the Market Vendors Association a worthy and major partner in its ESWM undertaking. At the front line are the women of the Market Vendors Association.

The ESWM Learning Resource Center in the trade town benefits women not only as vendors but as housekeepers and community members as well. Another organization, the Home Gardener's Club composed of 19 active members (79 per cent women and 21 per cent men) benefits from the ESWM as they are able to buy mature compost for their garden plants. The compost also benefits rice farmers, who are primarily men. The Center generates 120 sacks of mature compost monthly and sells it.

The Garden Club has also been given land by the local government unit (LGU) to operate a garden near the Learning Center. The Club maintains its garden by paying a woman caretaker Php 2,000 per month, in addition to potting materials and compost. The members earned some extra income from the sale of garden plants. The absence of foul odors, the sight of robust vegetables, blooming flowers and aromatic herbs has inspirated for many communities, particularly women, to replicate the ESWM practices showcased at the Center. It has become a source of knowledge on how to manage bio-degradable solid waste. The LRC has also provided the trade town with a new feature. It has become a tour destination. Many LGUs, Non Governmental Organizations, and students have visited the LRC. In addition to the extra money that vendors earn from these visitors, Ecological Solid Waste Management has become a matter of pride.

Questions

1. How was Solid Waste Management an urgent issue, especially for women?
2. How were women vendors able to get involved to improve the services they received?
3. What are the factors that lead to the success of the project? What are the factors that enabled the community women and men to manage their own solid waste problem?

11

Reduce, reuse and recycle

Anny Andaryati

Tangerang is a city in Banten, Indonesia. It is located about 20 km west of Jakarta. It is the second largest urban center in the Jakarta-Bogor-Tangerang-Bekasi (Jabotabek) region after Jakarta. It has an area of 164.54 km² and population of 1,487,000 (BPS statistic, 2003). In recent years, the urban expansion of Jakarta has reached Tangerang, and as a result, many of its residents commute to Jakarta for work, or vice-versa. Many high-class and middle-class satellite settlements have been developed in Tangerang, complete with their own shopping malls, private schools and convenience centers. At the same time, being close to the international airport and port, the city has also attracted small, medium and big businesses, and poor migrant labourers who live in the city's growing slums. For these people, basic facilities such as water and sanitation, health and waste management are non-existent.

With funding from USAID, CARE International Indonesia implemented an integrated project called "Better Governance to Revitalize Urban Environments and Improve Maternal and Child Health and Nutrition Program" (BERSIH). The program started in October 2004 with the goals of reducing the incidence of chronic under-nutrition among children under 5 and pregnant and lactating women; and the incidence of diarrheal disease among children under 5. In 2005, the program operated in 6 urban neighborhoods (kelurahan) in Tangerang City and District, and in 2006, it expanded into 14 new urban neighborhoods. It is currently operating in 20 areas.

The target group include under-nourished women with children under five, pregnant women and breastfeeding mothers. The project was divided into three interrelated components: 1) improve environmental health and sanitation — working with communities to improve their environmental health infrastructure (such as toilets, drainage, and solid waste disposal systems) and also train community members in sanitation in order to change their behavior; 2) community nutrition and 3) provision of health services.

Listening to women's voices

In 2005, the project conducted a baseline study of 944 respondents who are part of the CARE target population (i.e. those who had children who were underweight or stunted, or those who were breastfeeding their children at the time of the survey).

More than 50 per cent of the respondents stated that they throw their household waste in open areas, and 25 per cent said that waste disposal

They were aware of the connection between improper disposal of waste and the incidence of diseases such as diarrhea and dengue fever

was 'random' while 30 per cent said that waste was thrown away on open land close to their house. Forty percent of the respondents burned their waste. The baseline data showed that only 38 per cent of the neighborhoods in the target areas have a fully maintained and functioning solid waste management system. The community expressed concern about the lack of a waste management system. They were aware about the connection between improper disposal of waste and the incidence of diseases such as diarrhea and dengue fever.

CARE's initial approach to the community was through local community leaders and community health centers. The project staff conducted a participatory community assessment to map the location and assess the community's willingness to participate in the program. An action plan was drawn up by CARE, community leaders and the community, which led to the formation of local 'Action Committees for Community Health' (each neighborhood committee had its own name) that agreed on facilities that needed to be built, the location of rubbish collection points, and provided a forum for reaching a common understanding and agreement on actions from all stakeholders on solid waste management. The results of the participatory assessment and planning exercises conducted with the community showed a high degree of interest and support for child nutrition and public health activities. Specifically in connection with environmental health and sanitation, communities identified lack of toilets, poor drainage systems, and poor solid waste disposal systems as priorities.

Number of community members trained by CARE in 2005-06

Training Category	Participants	
	Men	Women
Diarrhea (causes and prevention)	3,308	6,757
Environmental Health	198	554
Personal Hygiene	1,049	588
Managing Public Toilets	444	832
Managing Solid Waste Disposal	1,842	2,155
Training TOT/Facilitation	15	15

Community gatherings were attended mainly by women, who expressed their concern about waste and diseases suffered by their families. Meetings were conducted to accommodate the time availability of men and women since the majority of the men work in factories in shifts or as drivers with long hours. After an intense process of interaction between community facilitators and the community on solid waste management issues, the communities decided to conduct regular voluntary environmental clean-ups, and to manage their household waste.

Reduce, reuse and recycle

Waste management involves the concepts of reduce, reuse and recycle. Each household has two rubbish bins, one for dry waste and the other for wet waste. The dry waste is collected by each household to be recycled or reused. The wet waste is collected by rubbish collectors. The communities agreed to pay $0.30 per month per household. This amount was to be used for maintenance and for paying rubbish collectors. Finally, the community was trained to measure the volume of their waste and monitor the success of efforts to reduce it.

The community can sell some of their dry waste such as aqua bottles, cardboard boxes, or styro foam to waste collectors. These can be exchanged for household goods such as glasses or plates. Wet waste is collected every day and taken to the local waste collection sites, from where it is taken to the main garbage collection points. Garbage trucks were provided by CARE to support this system. Together with CARE, the communities approached the local government to schedule rubbish pick-up every other day at certain locations along the main road leading to the Tangerang city garbage dumps.

Household bins are made from old drums, with one rubbish bin for every seven households. CARE provided the drums and paint and the community provided labor, with the men cutting, painting and designing the rubbish bins. Women were actively involved in the meetings and the decisions on the rubbish collection fee, location of rubbish bins and design of the rubbish bins.

To ensure project sustainability and increase community capacity to maintain the facilities, CARE conducted formal and informal training. This training was conducted by CARE staff and related government institutions. Up to the end of 2006, 6,856 men and 10,901 women had participated in training under the project.

Other project outputs up to the end of 2006 include: construction of 153 toilets; improvement/upgrading of 72 wells and 1,650 meters of village drainage systems; and providing 602 rubbish bins, 60 rubbish wagons, and building 14 rubbish collection points. As a result, 936 families have access to sanitary toilets and 795 families have access to improved wells. The residents of 25 sub-neighborhoods in eight neighborhoods have implemented small-scale community based solid waste systems.

The project will continue until the end of 2007 by which time the project aims to have upgraded solid waste management system in 95 per cent of the target area.

Questions

1. How were women involved in this project?
2. How did women's and men's involvement contribute to the success of the project in each stage?
3. How did the project benefit women, men and children — both in terms of physical well-being as well as social empowerment?

12

Changing waste pickers' lives

Outhaki Khamphoui

Lao PDR is a land locked country of 263,000 sq. km, with a population of about 5.9 million (Census 2005), 50.1 per cent of them women. Vientiane is a small city of nine districts with a population of 698,318 people (349,624 women as per the Census 2005). Four urban districts with a population of about 300,000 people are located in the municipality. During the last decade, Vientiane city has grown quickly due to trade and tourist services (markets, restaurants, and shopping centers). The volume of solid waste produced by its inhabitants was 30 tons per day, but only 60 per cent of the waste was transported to the official landfill site, located 18 kilometers out of Vientiane. Although Vientiane was classified as the least polluted city in the region, garbage was spread along the Mekong River and in some areas of the town before the inception of the Solid Waste Management for Vientiane Poor project.

This situation was due to ineffective solid waste management, insufficient technical support, and low awareness amongst the population about the dangers of pollution and the importance of waste disposal. At the village level, there was a lack of organized responsibility for the environment and only a few villages levied fees for garbage collection. Waste collection trucks were insufficient in number and road access was difficult or impossible in the worst slum communities. There were no organized community waste pickers to collect primary waste from households and take it to designated garbage disposal points for transportation to the landfill. Further, there was little understanding at the community level about the potential or the need to recycle solid waste. Local communities were therefore not interested in sorting these materials for selling, composting, and recycling. Hence, the collection, sorting and marketing of solid waste materials has, for several years, created jobs for some low-income people who collect recyclable items and sell them to buyers.

A view of the garbage dump

A socio-economic survey conducted by the Vientiane Capital Women's Union (VC.WU) implementing team in April 2005 found that 325 self-employed persons were working at the landfill at km 18. Of them, 47 per cent were women and about 15 per cent children. These waste pickers are from the poorest families of the communities around the landfill site. Among them, many households are headed by women, mostly widows. Most of these families are landless. Only a few land-owning families collect waste as an additional source of income to supplement agricultural production. Some families who have recently moved from the North in search of a better life, often with small children, have built temporary shelters from materials found in the landfill. Usually the women stay with their

Waste pickers are from the poorest families of the villages around the landfill. Many households are headed by women and most are landless

babies in the shelter, while their husbands collect waste and bring it to the wife for sorting before sale.

Number of waste pickers at landfill (April 2005)

Age	Women	Men	Total
10-15	24	21	45
16-30	60	75	135
> 30	70	75	145
Total	154	171	325

Source: VC.WU, Socio-economic survey, April 2005

Before the project began, all pickers had to transport waste home into the villages e.g. food for people (waste meat, vegetables, fruits), food for pigs, dirty plastic bags and bottles, clothes, papers, iron, glass, etc. This spread pollution further into the community and created resentment among other villagers who were not waste pickers.

Most of them are illiterate, or barely literate. Women have lower education levels, and illiteracy among women is higher than that of men. The children generally do not go to school. Work conditions and sanitation at the landfill were horrible. The environment was polluted with the bad smell of spoiled food, dust, and enormous amounts of flies during the rainy season and on very hot days. On windy days, thousands of plastic bags flew into the sky (waste storm).

Moreover, the landfill area was short of clean water and public toilets; the waste pickers had to bring water bottles for drinking and washing their hands — usually a five-liter bottle per family of 3-5 members. Most of them did not wear boots, masks, or gloves for protection from cuts and infection; sometimes even shoes were not used. Injuries and infection from broken glass and rusty metals were common. Infection from poor sanitation and eating arrangements was also common. Food vendors came into the landfill at lunchtime, and the workers bought and ate their food there — usually without washing their hands, or using very little water for washing.

Improving waste pickers' lives

Since April 2004, a three-year Solid Waste Management for Vientiane Poor project has been undertaken by the Vientiane Urban Development Administration Authority (VUDAA), supported by a Japan Fund for Poverty Reduction Grant through Asian Development Bank (ADB), with total budget of US$ 1 million. The project area covers nine poorest communities of Vientiane Capital, including Nong Chanh, where people live in slums, and at the Vientiane Municipal landfill site at km 18. The project was scheduled for completion in January 2007, but was completed in May 2007. Significant activities including training and community organizing skills and facilitation were sub-contracted to the VC.WU.

The objectives of the project were to improve the living conditions of the poorest households and waste pickers in Vientiane through better sanitation, better access to waste collection services, and improved standards of living achieved through entrepreneurial skills. The project was designed to: (i) improve and sustain solid waste collection practices, transportation and disposal services in poor communities; (ii) build the capacity to plan and implement sustainable community-based solid waste management; and (iii) generate income and promote employment opportunities for waste pickers and poor households. The main components of the project were: (a) Solid Waste Infrastructure Improvements, (b) Community-Based Solid Waste Management, and (c) Income Generation and Entrepreneurship Development.

Component (a) aimed to improve conditions at the landfill site at km 18, such as access road, pit excavations, establish a waste pickers' multipurpose center (WMC), to serve as a training and reference center for waste pickers and the poor to increase income, promote occupational safety for waste pickers, and improve management capability of the municipal landfill authority. The WMC was intended to provide a sorting area, recycling facilities, and training and administration rooms. A full-time manager was to be appointed for the WMC.

Component (b) aimed to enable communities to participate actively in solid waste separation, collection and recycling. A fee-based community waste collection system was planned, whereby the community bears the

The project aimed to improve the living conditions of the poorest households and waste pickers in Vientiane

cost of collection. This was intended to provide employment for the poorest of the poor in areas where waste collection services are a serious problem. In addition, the Project was to provide waste transporters/carts, sanitation equipment and materials for waste recycling centers (WRCs); and an improved cart for waste collection. A prototype waste transporter/cart for conditions where access is difficult was to be developed and tested by the Science, Technology and Environment Agency, and three WRCs were to be established, complemented by continuous improvements in environmental sanitation by self-help groups, in conjunction with the secondary collection done by Vientiane Municipality and Vientiane Urban Infrastructure Services Project (VUISP).

Component (c) included activities such as training and skills development in waste recycling, marketing, entrepreneurship, composting organic waste and vermiculture, accounting/ bookkeeping, and developing information, education and communication (IEC) materials. In addition, in-kind grants were to be provided to assist poor households/ communities and waste pickers. Baseline surveys for needs assessment were to be conducted.

Implementation of the project

The project has been managed by the VUDAA, while the training, community organizing and facilitation program were subcontracted to the Vientiane Capital Women's Union (VC.WU). The specific task of the VC.WU was to assist communities to define objectives, identify problems, issues and needs through facilitative decision-making about community waste management; provide training and technical assistance to build capacity and leadership at the local level; develop a community-based solid waste management system which involves primary waste collection, transportation, recycling and fee-collection; facilitate and assist community leaders and volunteers in organizing public awareness campaigns and community level education activities; and implement income-generating projects for waste pickers.

In the framework of community participation, the VC.WU has emphasized issues of Gender Equality and Equity in all activities, e.g. participation of women in training workshops, strengthening leadership and organization for solid waste management at village level and the landfill site, as well as income-generation activities for the poorest households of waste pickers. The information and tables below show the participation of

women in each project activity and the changes that have occurred with the project target groups and the organizers/project implementers.

Project management structure

A national-level committee based in Vientiane, comprising of three women and three men, was established to head the project. District-level committees were set up in four districts, each comprising of four women and four men. Village-level units were set up in 15 units and the men in the district committee coordinated the village-level units. The composition of these village-level units is explained below.

Organizing SWM units in 15 villages

Position	Women	Men	Total
Leader of Village Environment Unit (village head)	5	10	15
Village volunteers (2 per village)	16	14	30
Waste bank managers (14 villages)	7	7	14
Waste pickers (2 persons)	1	29	30

Source: VC.WU, Progress Report, 2005

Note: The only woman waste picker stopped working after 3 months, because the cart was too heavy. The carts, designed by the Science, Technology and Environment Agency, were made of iron and were bigger than those used earlier.

At the same time, a network of partners was established from the Capital down to target villages. The Women's Union representatives at all levels were deeply involved with the partner-organizations, and coordinated the campaign, capacity building and conducted monitoring / follow up and supervised the project implementation.

In the governance structure of the Lao PDR, there are many mass organizations which are working to support the Local Authorities e.g. the Lao Women's Union (LWU), Lao Front of National Construction, Lao Youth Union. All these organizations are active at the National level also. Usually a project working at community level prefers to coordinate with all organizations, particularly when they need to mobilize people's participation. This project was implemented by the LWU at Vientiane Capital level, through District LWU; therefore at community level, besides the village authority, the village LWU was the most important participant.

The awareness campaign covered environmental issues in solid waste management e.g. separation at source, collection, transportation, fees, etc.

Raising awareness about waste

The project kicked off with awareness raising campaigns among key partners to disseminate information about community participation in SWM. The public awareness campaign included workshops on environmental issues in solid waste management e.g. separation at source, collection, transportation and introduction of a fee system. Sessions on marketing and recycling of solid waste and demonstrations of recycled products were conducted with target groups in 15 selected villages located in 4 districts of the capital. The target groups included the district- and village-level committees and authorities, Village Women's Union leaders and members, community members, school teachers and students. Skill-training included composting and vermiculture techniques to eliminate and recycle green waste. After training, a number of participants were able to implement the techniques learned. About 70 per cent of the participants were women.

Participation in awareness-raising workshops about SWM

Category	Women	Men	Total
Village authority and leaders of household groups	926	959	1,885
Primary school teachers	438	251	689
Students	1,833	1,871	3,704
Community members	14,473	3,621	18,094
Waste pickers	397	286	683
Interested government officials	135	405	540
Grand Total	**19,659**	**9,080**	**28,775**

Source: VC.WU, Progress Report, 2006

Organizing and training landfill waste pickers

In the past, the interests of this large group of vulnerable people were

There has been visible improvement in individual hygiene, especially in washing hands with more water... More women started using contraceptives

not represented in central or local planning for waste disposal. There was no information about the number and status of people involved in this job, nor recognition of the dignity of their efforts in their search of a better life. They were on the fringes of village society and were not involved in community activities. The JFPR project was the first indication that others were concerned about their situation, and this was the first development project targeted specifically at them.

During the socio-economic survey and identification of their needs, 173 persons were interviewed; 90 women and 83 men. This event was their first interaction with outsiders. Some did not attend interviews due to fear of officials and project personnel, shyness, and because they were afraid of losing work time. However, after informal discussions, it was possible, gradually, to get women and men into conversations where issues affecting their livelihood could discussed. They are now more comfortable speaking with outsiders such as government and project officials.

The target population was organized into 11 groups; based on the family, age and village they lived in or near the landfill. This enabled them to interact among themselves as workers of the same occupation. They were provided with information and practical life-skills training including hygiene and sanitation and reproductive health.

Observation shows some visible changes since the improvement of infrastructure, namely after the construction of the Waste Management Center (WMC), fixing clean water systems and the construction of toilets and bathrooms for women and men. There has been visible improvement in individual hygiene, especially in washing hands with more water before eating and after using the toilet. More women made use of contraceptives and the services of the nearby state clinic.

The Center serves as a training venue, and a depot for waste storage. It is the first time that these workers have been able to store their collected waste in the field, without transporting it to their houses and villages. This method has also helped them to acquire and use basic literacy and numeracy skills. The drilling of bores and use of well water for cleaning the waste before selling, and the installation of a compressor machine for waste, have added value to the waste, thereby increasing the selling price.

All this has reduced pollution at the workplace and in their homes.

Changing waste pickers lives

Under the project, capacity building in entrepreneurial business, e.g. tailoring, hairdressing, mushroom planting, production of handicraft items from recyclable materials, improved knowledge about the possible impact of working conditions on health, as well as the provision of credit funds has helped landfill waste pickers to quit collecting garbage and undertake other skilled entrepreneurial occupations. According to the survey conducted after one year, 54 people (28 women and 26 men) had stopped working at the landfill.

The changing number of waste pickers at the landfill

Period	Age group	Men	Women	Total
April 2005	10-15	21	24	45
April 2006		21	24	45
Stopped working as waste pickers		0	0	0
April 2005	16- 30	75	60	135
April 2006		63	50	113
Stopped working as waste pickers		12	10	22
April 2005	> 30	75	70	145
April 2006		61	52	113
Stopped working as waste pickers		14	18	32
April 2005	**Total**	**171**	**154**	**325**
April 2006		**145**	**126**	**271**
Stopped working as waste pickers		**26**	**28**	**54**

Source: VC.WU, Socio-economic survey, April 2006

According to the last quarterly report of the Women's Union, 30 persons (16 women, 14 men) have been supported with a credit of US$200 per person to run their own business e.g. pig raising, marketing recyclable waste. Training was also provided to these people.

Teaching management skills to waste pickers

To administer the Waste Management Center, the project has facilitated the establishment of a management group whose members were selected from the waste pickers. The group is comprised of six persons, including one woman. All members have stopped working as pickers and transferred

to work full-time in their positions. The members of the group have equal salary, including the woman. The main function of the group is to buy sorted waste from field waste pickers, store it in quantity and sell it to local and foreign recycling companies/buyers. Support capital for this activity is available from the Project. For all of them, this is their first experience in working with a large-scale marketing business with big merchants including foreign companies and sharing management ideas or learning related skills, e.g. business management, leadership, accounting and marketing.

With regard to the selection of the managing groups, and its operations, it is interesting to note the evolution that occurred in the process of the institutional strengthening and the involvement of women. The VC.WU introduced the concept of Gender Equality to members before the selection of the WMC managerial group. In the first stage, no woman was selected. There was a need to sensitize again and emphasize the issue of gender and also set up a quota ruling that at least one woman be selected. As a result, a woman was selected to be a member of the management group.

According to the TOR developed by the VC.WU, the woman was to be responsible for 'organization', a description that is similar to Human Resource Development. Her routine work was supposed to be keeping records and following the actual number of the waste pickers at the Landfill, coordination of the training and workshops / meetings, and helping in the purchase of the recyclable waste. In fact she did not perform what the TORs described, but did only the cleaning of the office, boiling water and providing primary assistance in cases where pickers had injuries. This was because the other members of the management group did not allow her to fulfill her designated tasks.

The project facilitators (CV.WU) held talks with the men members to allow the woman member to fulfill tasks designated by the TOR. Office cleaning, it was suggested, should be shared by every member on a rotational basis, without gender discrimination. Men members were not happy and said cleaning is more suitable for women than men. Nevertheless,

Office cleaning, it was suggested, should be shared by every member on a rotational basis, without gender discrimination. Men were not happy and said cleaning is more suitable for women than men.

The livelihood of waste pickers at the landfill has improved steadily and with it, there has been an improvement in their socio-economic situation

they have accepted the change.

The Waste Management Center has two computers. The project has provided funds for computer training for the managerial group members. Two men were volunteers to attend the course in the town. The woman was also proposed, but refused to attend it as she felt insecure, due to her low education level (primary school), while other men in the group had completed secondary school education. This low self-confidence could also be observed at management meetings with the group, in which she had no say in the discussion and decision making in the early stages of the project. Later on, some progress in participation was observed, but still she had fewer opinions than her male colleagues.

Measuring success in waste

The programme on training and community organizing of the Solid Waste Management for Vientiane Poor was considered successful. The campaign reached a large number of people — women, men, and children. Teachers played an important role as agents of change by taking an active part in information dissemination to students and their family members. In addition to talks and workshops, fashion shows of clothes made from waste materials and drama helped sensitize the public and increase awareness. The activities of school students and community members in waste management, especially the application of correct practice on waste disposal, selection at source, and vermiculture in schools and households have raised awareness and upgraded knowledge of the capital population on environmental management.

The landfill with its improved infrastructure has been able to contribute to raising poor household income, as well as the income of the Vientiane Capital. The livelihood of waste pickers at the landfill – women, men and children – has improved steadily and with it, there is an improvement in their socio-economic situation e.g. working and living conditions are directly affected by the financial and technical support of the project.

Being involved directly in the implementation process of the project as

partners of the Vientiane Urban Administration Agency, the Women's Union at all levels has gained technical skills in solid waste management, and strengthened skills in public mobilization and organizing. Best of all, women villagers have learnt useful life-skills such as food processing, tailoring, hair dressing, pig raising, and vermiculture through waste management improvement.

Questions:

1. What difficulties/ vulnerabilities do women (more than men) experience at the landfill site?
2. Assess the benefits that women and men waste pickers gained through this project. What is the gender differences in gaining benefit (financial, social, political), and why did such differences happen?
3. Reflect on the way that waste picker organization was developed. How did it help women to gain more voice? What else could have been done to empower women waste pickers?

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Achieving zero waste

Maureen C Pagaduan
Romano Antonio V Wamil

The rapid increase in urban population in the Philippines estimated at 1.5 to 2 million per annum comes with a corresponding increase in the waste generated in urban areas. The National Solid Waste Management Commission estimated that the Philippines generates a daily per capita waste of 0.3 to 0.7 kilograms (Borja, 2006). The report also stated that in 2003, the country generated 27,397 tons of garbage daily adding up to 10 million tons for that year (ibid.). At the policy level, this reality has been addressed by the creation of the Republic Act 9003 or the Ecological Solid Waste Management Act which provides the framework for implementing solid waste management programs in the country.

Manila, the capital city of the Philippines, is home to almost one eighth of the country's total population. Massive rural poverty has lead to large-scale migration from the countryside into the urban center. An ADB report projects that by 2010, urban population in the Philippines will comprise 60 per cent of the total population. The city government of Manila recognizes that wastes generated by households, commercial and industrial establishments in the city pose a challenge to the economic and environmental viability of the city.

> Solid waste collection and disposal has always been viewed by local executives as a major area of concern over the years. The fact is, as the City population grows, the problem of waste management grows proportionately...waste management in the City has been one of the highest priority concerns which has become an indispensable component of development (Manila City Government).

Pasig River is the most polluted river in the Philippines. It stretches 25 kilometers connecting Laguna de bay (a freshwater lake) and Manila Bay. The river passes through four municipalities and five cities and Manila is one of these. Before pollution virtually extinguished aquatic life, Pasig River served as a habitat for 25 varieties of fish and 13 different types of aquatic plants. Today, there are only six species of fish and two types of plants left that can tolerate the polluted water and this situation is irreversible (WHO/UNEP, 1997).

The Pasig Rehabilitation Commission, a body created to implement and oversee rehabilitation projects for Pasig River, stressed that the river is being polluted not only by industrial waste, but also household waste dumped into the water by residents of nearby barangays or settlements. Villages or barangays along the Pasig River are therefore significant

The cause of the pollution was traced to untreated water released from large buildings and businesses

players in the implementation of the waste management mechanisms for the rehabilitation of the river. Villagers living along the river bank complain of the stench coming from the river which often causes respiratory tract irritation. Women in these communities often worry about the diseases the polluted water, foul smell, and improperly disposed wastes bring.

Waste reduction: *Bawas Basura sa Barangay*

In response to the call for the implementation of waste management schemes at the barangay level, The Pilipinas Shell Foundation, Inc. (PSFI) in partnership with the local officials of Barangays 833 and 834 in District VI of the City of Manila implemented the Triple B Project or the *Bawas Basura sa Barangay* (Barangay Waste Reduction) in 2001.

Barangays 833 and 834 have an estimated population of 960 households consisting mostly of low-income families. In a survey conducted by PSFI in 2001, 60 per cent of these families have an average monthly income of Php 6,000.00 (USD 123.00) generated from both formal and informal employment as contractual laborers in the nearby petroleum

installations or depots of Shell, Petron and Caltex, street vending and small-scale enterprises. Some of the men are pedicab, tricycle or jeepney drivers, while most of the women are housekeepers, their reproductive tasks including waste clean-up and disposal. In an interview with some of the local women, it was also found that some women in these communities offer laundry services to students and professionals living in boarding houses in the area.

Jessie Cruz, 48, a local woman who is currently the project supervisor of Triple B, recalls that before the implementation of the project, uncollected garbage was a common sight in the streets outside the houses . They eventually clogged the drainage system and were also carelessly thrown into the river. Residents usually placed mixed wastes in plastic bags and left these outside their houses or just about everywhere under the assumption that garbage collectors or street sweepers would collect the garbage. Unfortunately, this resulted in heaps of uncollected foul-smelling garbage on the streets.

The Triple B Project conceptualized and implemented in 2001 aims to

1. Collection: Segregated waste is collected from each household in the barangay. Collection is done daily, usually in the morning.

2. Sorting, Processing and Recovery: Collected waste is brought to the Materials Recovery Facility (MRF) where it is further segregated and recyclable materials are recovered, sorted and packed for selling.

Pics courtesy: Pilipinas Shell Foundation, Inc. — Pandacan Program

3. Weighing of segregated recyclables: Recyclable materials are weighed to determine volume and cost per kilogram.

4. Marketing: Recyclable materials are then sold to junk yards or haulers. Non-recyclables are collected and transported to dumpsites.

assist the barangays in establishing and managing their own waste management system. It also aims to encourage residents to practice cleanliness and proper waste disposal through sustainable waste segregation schemes that would contribute to a clean environment (Rosel, 2005). Triple B has three project components: technical and capability building trainings; information and education campaigns; and provision of materials recovery facility. The third component provides income-generation opportunities for the barangay as well as for those who are involved in the project when recyclable materials are sold to junk yards for recycling.

Women and Triple B

In the Triple B project, women are involved in the following activities

The project, which has now expanded to five other barangays in the district, is managed by women. The project management team is composed of women. The garbage collectors called the BIOMAN are actually BIO-

women as 11 of the 14 collectors are women. Jessie noted that though the project did not consciously involve women in the implementation, it just happened that during the community assemblies and orientation sessions, women comprised more than half the participants. When the project was launched and the management and operation teams were constituted, more women volunteered and assumed responsibilities for the management of the project. She personally thinks that this because keeping the households clean and disposing waste have always been the concerns of mothers. She also noted that the opportunity of earning an additional weekly income of Php 600.00 (USD 12.3) attracted women who wanted to augment their tight family budget.

Rosita Almazan, 59, a BIOMAN, says her involvement in the Triple B Project enables her to financially support her six grandchildren by her daughter Susana, who is a widow, and one grandson by another daughter Rowena. She also finds meaning in her work as a member of the community by teaching her neighbors to segregate waste and properly dispose off their garbage.

> I am proud to be a BIOMAN because it does not only help provide for our daily needs but also makes me instrumental in maintaining the cleanliness of the community where I live. (Rosita in an article, "Meet Aling Rosita", *Shell Balita.* 2006).

At the household level, waste segregation is done mostly by mothers or other women of the family. Schools and other commercial or industrial establishments in the areas covered by the project also practice segregation.

Working with waste

At the onset, Jessie who was once a secretary of the Barangay Council felt uncomfortable with her work in Triple B because she basically works with waste which are dirty and foul-smelling. Her children often find it embarrassing that she is a garbage collector. But she soon overcame the discomfort as she discovered the economic benefits of collecting, segregating and selling recyclable materials. Men in their community show little interest in the project because they believe working with waste is shameful, she said.

In the course of her involvement in the project, she and other women

recognized that their everyday exposure to garbage puts their health at risk. Even though protective gears such as masks, long-sleeved shirts, pants, boots and gloves are used during operations, they are still vulnerable to diseases. So the project, with the women's recommendation, set aside a part of its income to pay for their health insurance.

Maximizing education and capacity-building

Capacity-building and education are two components of the project which if maximized have the potential to mainstream gender concerns and perspective in the community. A series of orientation on environment and waste management as well as capacity building on waste processing, recovery and recycling were given to the community and to the project management and operations team before and during the implementation of the project. Based on current practice, none of these activities took off from a gender point of view. The education and capacity-building component of Triple B is yet to be sensitized and made responsive to gender concerns in solid waste management, particularly in addressing the following questions:

1. As mentioned, waste management at the household and community levels, remain women's concerns. This is stereotypical. How do community-based zero waste management projects recognize this reality and respond to it by helping women promote the waste management agenda as a serious concern for the entire community and not for women alone?
2. At the household level, how can waste segregation become a habit for every member of the family and not only mothers?

The program staff at PSFI realized that there is a need for them to consciously of make Triple B gender-sensitive and responsive now that mostly women are involved in the project. They understood the reality that the participation of women in both project management and operations is incidental and not consciously planned. Moreover, education and training activities are reaching more women than men, which reinforces women's burden of waste management responsibilities.

Jessie and Rosita both acknowledge the economic benefits of Triple B which allows them to financially contribute to their families.However they

are very proud that they are initiating positive changes in the community, especially in terms of maintaining cleanliness and encouraging other members of the community to be conscious of household waste management and proper garbage disposal. Jessie felt good about being able to serve the community. Rosita is proud to be a BIOMAN, and intends to encourage more women to be involved in the project. They both agreed that education and capacity-building activities are strategies to further develop women's potential not only as collectors of waste but as educators, advocates and leaders in the community.

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Questions

1. Despite women's large-scale involvement in project management and operations, this project is still not considered gender-responsive. Why?
2. In what ways has this project helped to change women's position in the household and community both positively and negatively?
3. The project has a high involvement of women, and men are not interested because they find waste management a shameful job. How do you think the project would be able to bring men into the activities?

SECTION: 5
GENDER IN AIR POLLUTION

An overview

Sources of air pollution in Southeast Asia (SEA) can be from various sources: from industries of different sizes, from workshops, from burning garbage, from transportation, from construction, from cooking, from burning agriculture waste, etc. Although air pollution defused widely, and affect variety of people, there is still gender issues in air pollution.

Indoor air pollution is a typically gendered air pollution, since it is deeply related to cooking, and access to improved stoves. Other indoor air pollution can be cause by home-based work, which can involve inhaling chemicals and dusts in a bad working condition.

There are proportionately more women working in garment industries, and occupational hazard from dust in these factories actually kill women, as can be seen in the Thai case study. Fighting for compensation for such diseases is an uphill battle for poor and lowly educated women workers.

Some occupations can be more vulnerable to air pollution such as street vending and traffic police. Many poor women and men are not in a position to change their jobs even when they know that their workplace is very polluted.

As seen in the Indonesian case, less consideration on air pollution when designing public transportation facilities not only discourages people from using public transportation thus increase air pollution much more, but it can also leave the people of lower income more vulnerable to air pollution, risking their health.

Women are again, caretaker of the sick. It is said that mothers of asthmatic children are more sensitive to air quality. It is thus important to take these care takers' voices into consideration in the course of urban development planning.

Because of women's higher responsibility in keeping their family's health, as can be seen in the case in the Philippines, women take strong lead in community greening projects. How to strengthen and promote such initiatives need to be a central point in UEM intervention.

14

Making homes healthier

Romyen Kosaikanont

> I felt so ill. I get very bad coughing fits. I also get a serious chest tightness which sometimes leads to pain.

Daeng, a 46-year-old woman, has been suffering from these symptoms for many years. She was recently diagnosed by the local doctor as suffering from Byssinosis. According to the National Library of Medicine, USA (2007), Byssinosis is a chronic occupational lung disease, also referred to as "brown lung disease" and "cotton worker's lung". It is frequently found in textile/cotton/garment producing areas/factories. An asthma-like condition results from long and consistent exposure to dust generated by fabrics/garment production and the condition is apparently worse in smokers and sensitive individuals. Byssinosis causes a narrowing of the airways due to the breathing in of cotton, flax, hemp, or jute fibers and dust (National Library of Medicine, 2007).

Daeng is from Pa Mok village situated in the Ban Thi District, Lamphun province, Thailand. The province houses the biggest Export Processing Zone in Northern Thailand, which contributed greatly to the country's economy during the economic boom of the early 1990s. The double-digit economic growth gave Thailand the reputation of an economic miracle before the economy collapsed in 1997.

Like many women, Daeng first started working in the garment factories as a young woman and left after she got married. Women who have families and household obligations often quit work to take care of their babies. However, since their income is not sufficient for their needs, they continue to work on a subcontracting basis for these factories, which allows them to work at home. Such home-based work allows them to balance their paid work with their unpaid reproductive work at home. Women do not leave the workplace solely because of their household responsibilities. They are sometimes made to leave because of company policies. According to the National Economic and Social Development Board, garment export has encountered serious competition in the past 20 years, with many new emerging economies with cheaper labor costs. As a consequence, garment factories in Thailand prefer to hire only young and unmarried women who are believed to be less organized and willing to work for a lower wage. The late 1990s economic crisis was used as a legitimate excuse by many factories to lay off workers. Since 80 per cent of the laborers manufacturing the top 10 export products are women (Bell, 1993), the majority of those laid off were women.

As Thai women have always been economically active, after leaving formal work, they continue working in the informal sector. Daeng and many

Daeng first started working in the garment factories as a young woman and left after she got married

women from her village have been working as homeworkers[1] for garment factories for the last 10 years. Informal workers are those who are not covered by the social security scheme. According to Homenet Thailand (2005), of the 35-million active labor force, only 12.5 million are in formal employment, identified as those under the social security scheme. Around 12.5 million are in informal employment as agricultural workers (10 million), homeworkers, street vendors, self-employment, service workers, etc.[2]

The scene at Pa Mok

Daeng is one of many women from the same village who are engaged in informal employment as homeworkers. She started working as a homeworker after she got married and became pregnant. She said:

"The factory does not want to hire pregnant women. I just knew then that I should leave. But I didn't mind it because I knew that I could also work from home."

Many women from the same village have their livelihoods based on garment production. The nature of the garment production in Pa Mok village is informal in the sense that the work is subcontracted from the main garment factories based in Lamphun and Chiangmai. The wages are paid on a per piece basis. Thus, homeworkers need to receive more work in order to get higher income. Competition for work sometimes leads to homeworkers lowering their rates, leading to the 'race to the bottom' phenomenon.

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1 According to National Statistical Office (2005), the term 'homeworker' refers to an individual aged 13 years or more whose main characteristics of work are: The place of work can be anywhere other than the employer's workplace. The homeworker does not produce the goods for his/her sale but must return them to the employer. There is an agreement on pay between the homeworker and the employer. Either employer or homeworker, or both, can fix the pay rate. The work must be done as required by the employer.

2 Informal sector workers are also eligible to join social security scheme. However, they need to pay double premium compared to formal sector workers, making it virtually impossible for them to join social security scheme. It is also noted that many workers who are supposed to be in formal sector are also not covered by social security scheme for various reasons.

She has, using her own savings, renovated the workshop and reduced the health risks for her children, herself and other workers.

Garment factories distribute work through their connections, mostly ex-factory workers. This person then subcontracts different parts of garment production to different homeworkers. Some homeworkers cut fabric, while others only process some parts of the finished products such as collars, sleeves, sewing buttons, etc. The factories gain greatly from this kind of production as workers are not organized and offer cheaper wages. Moreover, the factories do not have to be responsible for the homeworkers' working conditions or bear the cost of the safety measures.

The majority of the homeworkers live in poor areas without basic health and welfare services. Social protection is often limited. They often work in an unhealthy and unsafe working environment. Using their homes as a workplace for garment production with a poor working environment and sparse protection means that these women are constantly breathing in small particles from the cloth produced. Working in a hot climate, especially in summer, means that fan is often used. As a result, many of these women were found with symptoms of Byssinosis. The local doctor also indicates that these symptoms are more commonly found in women than men because women are more exposed to these small particles than men, since men are outside the home most of the day.

Daeng said that she is not the only one who suffers from Byssinosis. Her daughter, who has been brought up in the house, has been breathing in these particles since she was born. When her daughter was about nine years old, she became seriously ill and had to spend some time in hospital. That cost Daeng much worry and money to cover health care expenses. She recalled that she had to stop working for months in order to care for her daughter. She recalled that:

> I was so worried about my daughter then. My daughter developed so many respiratory symptoms. When she breathes there was this wheezing noise. It was scary. During that time, I was spending so much money and time in and out the hospital.

After this incident, Daeng suspected that their sickness must have stemmed from the dust generated by the garments she worked on at

home. She then reorganized her house to separate the working and living areas. She built a new working space outside her house which could support several women. This area serves as a working space where women can come and work together. Subsequently, her husband, who earlier worked on the farm, joined her in garment production and helps her cut the fabric and deliver the products.

After her daughter's illness, she has gained great interest in occupational health-related issues. In 2005, she joined Homenet Thailand along with the other women working at her house.

Daeng is relatively better off than other homeworkers, since she is also a subcontractor. Specifically, she has a space in her home, which she converted into a workshop. She has money to buy sewing machines for the workshop (more workers will come to her because of this). And as one of the first people in this business, she has a connection with the factory. So orders flow through her. Her workshop is well established both in terms of the physical setting and the connection with people in the business.

Daeng has gained substantially from the new campaign on the health and safety of home-based workers being carried out by NGOs such as Homenet or the local government officials in the village. NGO and government officials have visited her workshop to meet her group and given technical suggestions for improvements. She has, using her own savings, renovated the workshop and reduced the health risks for her children, herself and other workers.

Homenet Thailand (HNT)

Homenet is a network of homeworkers in four regions of Thailand. It was formed in 1998 as a coordinating center for home-based producers, homeworkers, and NGOs working on labor and social protection issues. It was later renamed Homenet Thailand or HNT (HNT, 2007). The ultimate goal of the network is to improve the homeworkers' quality of life. Its mission is to consolidate, support, protect, and strengthen the identity and role of the home-based workforce in Thailand (ibid, 2007).

Homenet carried out a research project entitled "The condition and the problems facing informal workers" on homeworkers in Northern Thailand, which concluded in 2002. The research revealed that informal laborers encountered many problems: (1) health-related problems and/or occupational illness (2) lack of social protection (3) lack of job security (4) poor working conditions - poor ventilation, excess heat, insufficient work-

The success of the project is that these women homeworkers are now more organized and are improved their living and working conditions

ing space, poor lighting, poor housekeeping, lack of protective gear and over-exposure to dust and chemicals (Homenet, 2002).

Homenet used these findings as baseline data for a later three-year project. The project entitled "Improving Quality of Life of Informal Economy Project (IQLIE): Homeworkers" (March 2004-February 2006) is financially supported by the Thai Health Promotion Foundation. Under this project, health and social protection issues were identified as the most urgent. The ultimate goal of the project is to improve the occupational safety, health and environment of home producers.

Improving quality of life

The main objectives of the project are: (1) to raise awareness about occupational illnesses among homeworkers and advocate better health and safety measures; (2) to improve working conditions and change homeworkers' behaviours in order to achieve health and working safety; (3) to work with a homeworkers' group/community in order to set up a "good practice" model for other groups/communities; (4) to advocate a change in the local governmental offices in addressing both social protection and occupational health-related issues; (5) to build institutional support by raising awareness about occupational illness and risks among health service providers within the target areas.

The target areas of the project were selected on the basis of their potential. Pa Mok Village, where Daeng lives, was selected because of the number of homeworkers living there. Moreover, these homeworkers are suffering from occupation-related illnesses and many are already aware of some of the issues. In addition, the homeworkers, especially women, are already organized and willing to work with the project.

Ms. Gussarin Phumat, a female project coordinator, explained that the success of the project could be gauged by the fact that most of the homeworkers who attended training have changed their working practices.

> When we trained them [the homeworkers] for the first time, we showed them the effect of the small particles generated by

> the garment production process on the lungs. We showed them an X-ray of a lung with Byssinosis. That picture was scary, but it was really effective. Then we told them that they should use a mask to cover their noses in order to protect themselves. We gave masks to all homeworkers who came to the training. At first they complained that it was hot and inconvenient. But when we went back to the village last time, we found that the homeworkers have rearranged their work place and continue wearing the masks even though they have to buy it themselves.

Ms. Gussarin also mentioned that the advocacy work with the policy makers has also reached a satisfactory level; the Tambon Administrative Office (TAO) has set aside a budget for improving the living/working conditions of the homeworkers. She explained that factors contributing to this success are the large number of homeworkers within the district and the fact that TAO's chairperson is a woman who understands and sympathizes with the women workers.

The aftermath

After the project was over, it was found that certain activities initiated during the project are still being carried on. For example, Daeng said that the local doctors regularly do outreach health checks for homeworkers once a month. The homeworkers are required to check their lung capacities. In addition, the local hospital has also put in surveillance measures for Byssinosis. Meanwhile, local hospital personnel who were involved in the project are sympathetic to home-based workers and exempt them from treatment charges for occupational health-related diseases. Daeng believes that these efforts have improved the overall health of homeworkers and their family members. Deang also noticed that many other women who have gone through the training have been giving advice to other women about social protection and occupational health-related problems. Ms. Gussarin also mentioned that one of the successes of the project is that these women homeworkers are now more organized and are helping each other improve their living and working conditions.

The garment factories that outsource the work do not admit that these illnesses are caused by an unsafe production process. By law, the factory is not responsible for this cost. According to Thai labor law, a contract

between the homeworker and factory needs to be signed if homeworkers are to be treated as workers. In actuality, it is not possible for these women to get a signed contract, because the factories or their intermediaries would hire other women who are willing to work without contract. Homenet Thailand has been advocating to the department of labor for some years to issue a Protection of Homeworkers to protect the rights of home-based workers.

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Questions

1. Why are women home workers vulnerable to air pollution? What are their options given the restrictions in obtaining alternative employment?
2. How does HomeNet help women home workers to overcome their vulnerability?
3. What are the strengths of HomeNet in organizing and networking?

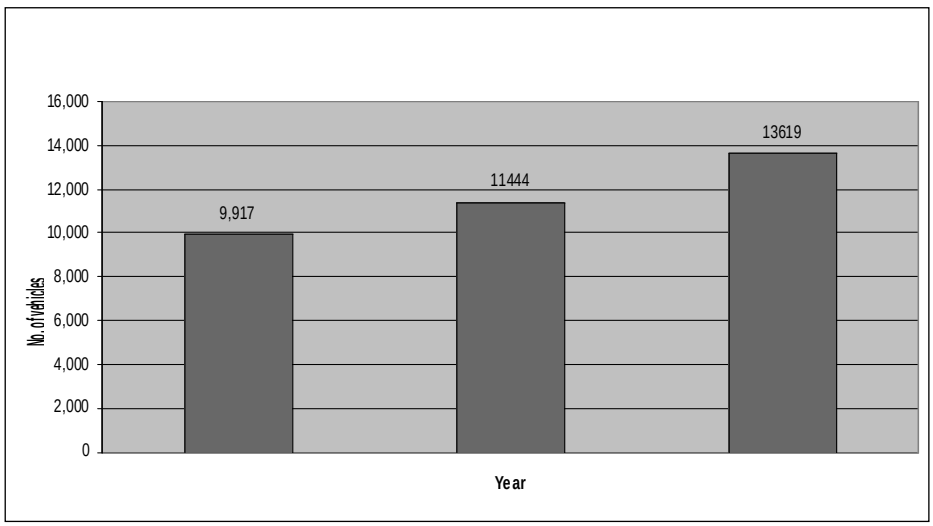
15

Greening the highways

Fe Quanico Salcedo

The Philippines, an archipelago of 7,107 islands in the western Pacific Ocean, is among the world's most populous countries, with a population of over 88 million. Antique is a province located in the Western Visayas region, facing the Sulu Sea. The name Antique is a corruption of the old name Hantik, which is taken from the large red ants found on the island, called lantik-lantik. San Jose, the capital, is located in the western portion of Panay Island. According to the 2000 census, 471,088 people live in the province, 48,261 of them in the capital.

The changing socio-political and economic environment has led to a rapid growth of the transportation sector1. The transport sector is a big contributor to air pollution in the province, affecting the well-being of passengers and people who live along the highway. Over the past three years (2003-2005), registered vehicles in the province have increased considerably from 9,917 in 2003 to 13,619 in 2005. In 2003, total emissions from volatile organic compound, oxides of nitrogen, oxides of sulfur, particulate matter and carbon monoxide came to 266,243 tons. Of this volume, 82 per cent was carbon monoxide while Particulate Matter (PM) and Particulate Matter less than 10 microns (PM10) comprised 9 per cent of the emissions. PM10 from vehicle emissions poses many health risks. In 2005, as the number of vehicles increased, so did gas emissions. The Land Transportation Office's partial list of registered vehicles in 2006 indicated another increase in Antique. As of 2007, motor vehicles contribute to as



No. of registered vehicles in Antique for 2003-2005

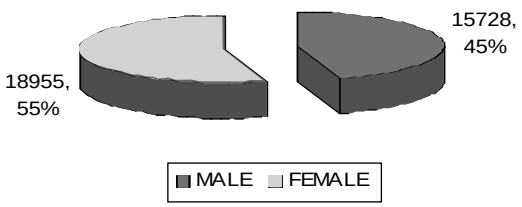
1 State of the Air Quality. Pollution Control Division, EMB, R6, Iloilo City. 2003

Women and children living in villages along the highway are most susceptible to vehicular air pollution. They are also the caretakers of the sick, the young and the old

much as 70 per cent of the air pollution nationwide.

The transportation sector is predominantly male-dominated, according to the NSO 2005 Annual Survey of Philippine Business and Industry. However, both women and men are affected by air pollution from the transport sector, albeit in different ways. A survey of public transport revealed that women use it to take children to and from school; to travel daily to their own place of work; and, "bolantera", selling a variety of goods and commodities at different market places on various market days. In villages along the major highway, women are often at home managing household activities and caring for the children. The men are at the rice field or at some upland farms. Thus, women and children living in villages along the highway are most susceptible to vehicular air pollution. They are also the caretakers of the sick, the young and the old. Hence, they tend to spend more time around the household, rather than in farms and other places. This increases their vulnerability to air pollution.

This case study looks into the lives of people living along the highways in the semi-urban and rural areas of the province of Antique. How does vehicular air pollution affect the lives of women, men and children in their homes, workplaces and other spaces? What are the factors that expose them to air pollution? What are the factors that can mitigate the impact of air pollution on their health?



Percentage of women and men participants in Green Highway project, Philippines

A tree can only absorb 0.56 metric tons of carbon dioxide in its lifetime. Ten trees are needed to capture the carbon emissions of one vehicle.

The greening of the highway

Several measures to reduce transport-related air pollution have been discussed and considered over the years. For the past couple of years, the Department of Environment and Natural Resources (DENR) had been initiating urban reforestation. Lately, the focus has been on the greening of major highways - the Green Philippines Highway Project. A single tree can only absorb 0.56 metric tons of carbon dioxide in its lifetime. Therefore, ten trees are needed to capture the carbon emissions of one vehicle. Trees also serve as a buffer against noise pollution for houses near the highway. Finally, their aesthetic value provides visual appeal to travelers.

The Green Philippine Highways Project visualizes: "A region, where trees and other plants are the landmarks of every road to abate air and noise pollution along the streets and attract tourism in this part of the country." The Green Philippine Highway project covered the major highways and roads of the country with the intent of addressing the deteriorating environmental condition of these areas. In the Province of Antique, it covered the 155 km stretch of national road from south to north. This highway connects San Jose, the capital town of the province, to the Roll On, Roll Off (RORO) Facility that connects the Region to the National Capital Region and to Boracay Island, a major tourist destination. This is the major focus of the Green Philippines Highway Project. It passes through all the 11 municipalities of Antique, 3 of which are the other growth centers in the province.

The Green Philippines Highway Project included participation by women and men from the government and non-government sectors such as civic organizations, people's organizations and cooperatives. The synchronized tree planting activity reported the participation of 34,683 people, 55 per cent of them women and 45 per cent men. Almost all the people in the department responsible for this project were men. However, the most enthusiastic participants were women, which can be attributed to the participation of people's organization WOMAN. Inc., and a significant number of women members in civic organizations such as the Rotary

Club of Antique, Antique Medical Society and Association of Family Physicians. Most participants from the Department of Education were women from elementary and secondary schools in the municipalities. For both women and men, planting trees along the highway means a green and beautiful roadside. Among the participating municipalities, the Municipality of Culasi recorded the longest stretch of covered highways with 6.57 kilometers planted with 657 seedlings interspersed, in some cases, with vegetables and ornamentals.

DENR experts recommended the following characteristics for choosing trees and plant species for the greening project:

There was no conscious effort to make the project gender sensitive. Hence there was no effort to include women in the decision-making processes.

- They should have the capacity to grow and develop within the assigned limitations; adapt to the existing and expected environmental stress as well as current land use in its vicinity such as rice fields, agro-economic zones and residential area. Incidentally, this is where the needs of women and men differ most often.
- They should be resistant to pests and diseases and have a satisfactory growth rate.
- They should be low-maintenance species with a reasonably effective lifespan. This characteristic is gender-responsive as a high-maintenance species would demand more time, especially from women, whose community role primarily includes clean and green initiatives.
- They should have the ability to fulfill the functional use in the urban areas as a buffer, shade, shelter, fruit and aesthetics. They thus support women's reproductive roles by ensuring food availability for the household.
- The species should have an acceptable percentage of survival after transplanting or planting.

Given the time allocated by men and women to reproductive, productive and community roles, some of these characteristics benefited women. There was no conscious effort to make the project gender sensitive. Hence there was no effort to include women in the decision-making. All volunteers were encouraged and plants were given by the department, which also supplied specific plants to volunteers, if it was available.

In the absence of any gender sensitive project planning, it is purely due to women's active participation that the project became gender-sensitive. Women's organizations and departments such as the education department comprising of large-numbers of women workers participated in this project as they felt that it was important to plant trees.

Ensuring the maintenance of the plants was important, especially in the early days. Representatives of the Local Government Unit monitored the newly-planted areas thrice daily, while the people nearby as well as the DENR staff watered the plants regularly. At areas near homes, women usually watered the plants and ensured their survival.

Making the difference

When one travels along the route that has been adopted for the Green Philippines Highway Project, the Municipality of Culasi is difficult to miss. According to the Planning Officer of the Provincial Environment and Natural Resource Office, even before the official launch of the Project, Culasi has been greening the highway.

Culasi is a major stop-over or embarkation point for vehicles that travel to the nearby province of Aklan as well to other destinations that are part of the RORO trips. The town is also identified as one of the growth centers of the Province of Antique. Its central district hosts several bus terminals and pit stops of public utility vehicles that include jeeps and tricycles. It has a Municipal Seaport that services passenger ships plying the Manila-Antique-Manila route. There is a current plan to convert this into a RORO facility for cargoes. With this, the town's transportation activities are expected to increase further.

The greening initiative of the locality provides better protection to travelers and the community against increased vulnerability to air pollution and health risks. Aside from its aesthetic value, the trees have to improve air quality in the area. The Local Governance Performance Management System (LGPMS) indicated better environmental conditions. The performance measurement reported only rare occurrences of smog, with minor health impact and no reported increase in respiratory-related diseases. There were also only rare occurrences of dust, with minor health

impact and no reported increase in respiratory-related diseases.

The trees not only addressed the air pollution caused by vehicles, but also abated the air pollution caused by a large-scale piggery located in the Agro Industrial Zone of the town. After the mahogany trees planted in 1995 matured, there was a noticeable change in the air quality in the agro-industrial zone.

Culasi is reported to have a lower average incidence of acute lower respiratory tract infection, pneumonia and bronchitis than the national average. This is very beneficial to women who usually manage the family's health and budget and care for sick family members. It also impacts the lives of men who are more prone to such diseases as indicated by the sex disaggregated data on the top ten leading causes of morbidity and mortality.

The challenges in greening the highway

Greening the 155-kilometer stretch along the national highway was a very challenging exercise for the participating sectors. Before the formal launch of the Green Philippines Highway Project, DENR planted trees along 59.65 km of road from 1995 to 2006. DENR, LGU and other partners learned several lessons and identified the challenges during this period. It was observed that survival rate was low in most open spaces, especially along rice fields. Thriving seedlings suddenly disappeared.

While PENRO personnel suspected that farmers may have taken these seedlings home to plant in their home lots, a Barangay Captain (Village Head) revealed that farmers (primarily men) believe that shade is detrimental to the growth of their crops and hence do not like the idea of trees planted along the roadsides where their farms are located. Hence, they tend to uproot the seedlings.

The pictures shown above were taken from the same roadside stretch along the highway connecting San Jose and Sibalom. The replanted seedlings along the rice fields are just starting to grow, whereas the seedlings planted along the concrete fence are now full-grown mahogany trees. In Culasi, the row of mahoganies lining the road towards the Municipal Port would not have survived without the thrice-daily monitoring by the representatives of the Local Government Unit.

Choice of species

Key informants related that women in the villages prefer to plant fruit-bearing trees. This was confirmed by the DENR personnel who received more requests for fruit-bearing trees from women. Among the popular fruit-bearing trees requested were some varieties of mangoes. However, an observer explained fruit trees are not best suited for planting along roadsides as motorists could be at risk during fruit-bearing season.

Nonetheless, it was noticed that those who prefer to plant fruit trees seem to be aware of such danger. Fruits trees are often planted inside home lots, providing air sheds for pollutants from the road/highway, without endangering motorists.

Below is the picture of front yards of houses along the highways of Culasi, planted with mangoes. Noticeably, the trees are planted inside the home lots and at some distance from passing motorists. However, they still act as screens protecting household members from transport -related air pollutants. Likewise, planting mango trees, which are fairly short, reduces the risk of damaging electric lines and causing brown-outs. Therefore, women's preference for fruit-bearing trees does make sense.

There have been no specifications on which kind of species should be planted along the highways as part of urban greening as in the greening of the Philippine Highways. What was considered most important was that the specie of choice contributes positively to the enhancement of the environment and the well-being of the dwellers as well as to gender-differentiated roles in terms of women's time spent at home versus men's time spent on farms.

The urban micro-climate is modified by the shading effect of trees and vegetation, increasing long-wave radiation, reducing wind speed, intercepting rain, cooling the air by evapo-transpiration and possibly increasing humidity. Likewise, the narrow dense belts of trees are effective noise barriers. Trees, with other flora, also help conserve energy. Properly placed shade trees around small homes can significantly decrease the energy required for space cooling up to 80 per cent, which will result in more savings.

Questions

1. What are the roles that women and men played in organizing and implementing this project?
2. Can you trace how women's and men's gendered roles impacted the highway greening project?
3. What are the gender-sensitive considerations in this project?

16

Gendering public transport

Anny Andaryati

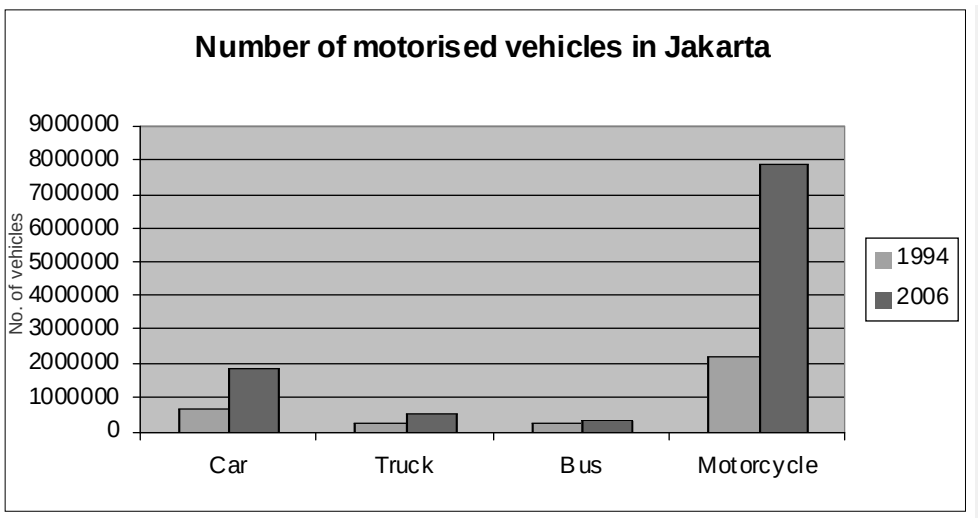
Jakarta is the capital of Indonesia and its largest city. Located on the northwest coast of the island of Java, it covers an area of 661.52 km² and has a population of 8,792,000 (in 2004). As of 2007, Jakarta is the ninth-most densely populated city in the world with 13,290 persons per square kilometer. Its metropolitan area, Jabotabek, contains more than 23 million people.

Jakarta's population and economy is developing rapidly and continuously. This is leaving a serious impact on its environment. One of the results of development is air pollution deriving from the use of energy in the transportation and industrial sectors. Levels of air pollution reach dangerous levels along the major roads in Jakarta, especially in the central business district, during the severe traffic jams that occur every working day as a result of heavy traffic.

Causes of air pollution

The worsening of air quality is closely linked to the growing number of motorized vehicles. Since 1990, the number of motor vehicles has been increasing rapidly, at an average rate of around 15 per cent per annum from 1997 to 2000. According to Jakarta Police Department data, the number of private cars increased from 750,000 in 2004 to 1,829,576 in 2006. The table below shows the rise in the number of motorized vehicles in Jakarta from 1994 to 2006.

Almost 50 per cent of the vehicles registered in Jakarta are motorcycles, and more than 60 per cent are the highly polluting two-stroke models.



Source: Jakarta Police Department, Indonesia

Motorcycles are popular because of their ability to move through congested traffic. With financial institutions offering easy access to credit, they are affordable for medium- and low-income people. They are used not only for personal transportation but also for informal commercial transportation and goods delivery. Motorbikes, poorly maintained cars, smoky diesel buses, taxis and trucks and three-wheelers are the highest polluters.

Most of Jakarta's vehicles still use carburetors and lack exhaust aftertreatment. A 1997 survey on automobile emissions in Jakarta found that 47.9 per cent of all petrol vehicles and more than half of all diesel vehicles exceeded the standard emissions allowed by the government health and safety norms. In 1997, the local government of Jakarta introduced the Inspection and Maintenance Program (I&M) which has been implemented since 2002. The objective of I&M is to protect the environment by reducing exhaust emissions by ensuring correct engine adjustment through regular testing and maintenance of vehicles.

Almost 50 per cent of the vehicles registered in Jakarta are motorcycles, and more than 60 per cent are the highly polluting two-stroke models

Even though Jakarta has public transportation throughout, including buses and railways, it does not have enough capacity to cater to the demand. During peak hours, the number of passengers far outstrips the capacity available, resulting in long and unpredictable waiting times for buses and overcrowded vehicles. Initiatives to address pollution have focused on easing traffic congestion and trying to attract more people to public transport by upgrading both the quality and capacity of the service.

Among the initiatives launched by the government, NGOs and other stakeholders to combat the rise in air pollution are a three-in-one (minimum three passengers) rule for some of the main streets in the city during rush hour, and a series of programs to reduce vehicle emissions (e.g. the Jakarta Government's Clean Air Program, the Ministry of Environment's Blue Sky Program, and the Jakarta Governor's vehicle Inspection and Maintenance Program). However, these initiatives have had limited impact due to lack of resources, the political will to take unpopular decisions, and ineffective enforcement.

Addressing air pollution

Pelangi is a local NGO established in 1992, which specializes in policy analysis and campaigning for sustainable transport. It works with the executive and legislative arms of the Government, the private sector, other NGOs and the public. Pelangi is one of the main advocates of a sustainable transportation system for Jakarta, campaigning particularly for non-motorized vehicles and public transport, including campaigning on issues of public access to transportation facilities, and road safety.

Pelangi's programs cover the areas of climate change, energy, forestry, transportation and air quality. During its efforts at promoting sustainable transport, Pelangi was exposed to the problems of air pollution and mass transport management. The final objective of Pelangi's programs include the establishment of sustainable transportation and better air quality management to minimize air pollution. Besides the provincial government of Jakarta, Pelangi also promotes the socialization and implementation of public busways in Jakarta.

In 1999, a public awareness campaign called 'Segar Jakartaku' (My Clean Jakarta) was launched by a consortium including Pelangi Foundation, Swiss Contact, the Ministry of Environment, Jakarta Local Environment Department, The Jakarta Communications Department, and the Committee for the Banning of Leaded Petrol. The campaign worked to raise public awareness on the health risks of air pollution and the benefits of reducing it. The campaign marked an important step in the development of Pelangi Foundation's work on this issue.

In 2001, Pelangi published a research paper "Loe Loe, Gue Gue", which assessed how the city of Jakarta has developed, in terms of four major areas: human resources capacity, social capacity, environmental capacity, and governance capacity, and how far it has succeeded in becoming "a livable Jakarta". The answer was clear: "Livable Jakarta" had a long way to go. But as more people used public transport, the use of private transport was on the decline. This was encouraging. The experience from the Segar Jakartaku campaign and other programs taught Pelangi that public awareness was never going to be enough to make the dramatic changes needed to reverse the decline in Jakarta's air quality.

As a result, since 2002, Pelangi has been campaigning for the introduction of an integrated bus system in the capital. This campaign brought pressure from many others, and the Jakarta Government took the controversial decision to create bus-lanes on some of the city's most choked highways, and establish a dedicated Busway system, known as TransJakarta.

The first task was to find out why the bus service was not popular with different sets of users... During rush hour, the buses were packed with as many passengers as possible

Gendering public transport

The first task was to find out why the bus service was not popular with different sets of users. Pelangi's study found that the bus service was not comfortable to most types of users. During rush hour, the buses are packed with as many passengers as possible. Women complained of being harassed on buses. The buses have no special seats for pregnant women, women with children or old people. There were reports of thieves and pickpockets operating in crowded buses.

Pelangi supported the implementation of the Busway through radio campaigns and journalists' workshops, and gave inputs to the planning of the system itself. One of Pelangi's suggestions, based on its survey, was that women should comprise 30 per cent of the bus drivers. This was accepted, and is one of the more revolutionary aspects of the Busway. Pelangi's survey showed that passengers feel that women drivers are more careful and that the ride is more comfortable. Not only were women encouraged to apply, the quota for women drivers was strictly instituted.

From its survey, Pelangi was also aware that the success of the Busway would depend on the quality of access ramps, waiting areas and other facilities. They introduced the concept of Bus Rapid Transit, with comfortable and clean transit areas, easy pedestrian access, and where possible, encouraged the use of non-motorized modes of transport to get to the Busway.

Pelangi also gave inputs to the architects of the Busway in terms of the design of the roadways around the bus stop. Their inputs resulted in improvements in design so that, for example, women could comfortably push child-strollers onto the access ramps, and could cross the road safely with children while entering and leaving the Busway.

Pelangi's work in this area is guided by the principle that sustainable public transport is a universal benefit, but special groups have special requirements in accessing these benefits. They stress that public transport should be accessible to everybody: women and men, pregnant women, elderly and disabled. This also applies to the design of the routes: men pri-

marily use public transport to get to their workplace, while women may also use it for domestic and caring duties such as going to the market, taking the children to school or to the doctor. Women tend to make shorter journeys, and are not as confined to rush hour travel as the men. It is, therefore, important to consider women's priorities in the scheduling of public transport. Based on their research, Pelangi is convinced that women will use public transport more if it provides safety, freedom from harassment, and clean nursing facilities.

Despite a controversial start, amid loud protests by private car users, the Transjakarta Busway project has been judged a success. The original two Busway corridors have now been expanded to encompass seven routes into the city, from every main suburb. Pelangi's research and campaigning is part of the reason for the success: it helped the Busway be more responsive to the needs of all the citizens of Jakarta.

Jakarta's air pollution problems are far from over and Pelangi's role as an independent voice providing analysis and campaigning continues to be vital. This is especially true when it comes to their role in mainstreaming gender into the sustainable transport and air pollution discussions.

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Questions

1. In what ways was gender sensitivity introduced in the Busway system?
2. What are the difficulties women faced in accessing the bus system?
3. What else do you think the project can do to improve the busway system to provide better access to people and especially women?

17

Reducing air pollution in small-scale enterprises

Vu Phuong Ly

Vietnam's economic reforms, which started in 1986, have transformed the country. Rapid economic development in both industrial and agricultural sectors has contributed more than 50 per cent of the country's GDP (NEA/WB/DANIDA, 2002). Women, who constitute about 40 per cent of the work force in the industrial sector, have also been instrumental in the country's development. During this industrialization and modernization phase, Ho Chi Minh City and its peripheral areas added significantly to Vietnam's economic growth. However, the environmental impact of this growth was ignored and hence this is the most polluted area in the country. The city has a dense concentration of industrial activities such as mechanical, iron and steel, textile and chemical industries, which leads to air, soil and underground water pollution.

Enterprise and workers

This case study records a project intervention at COSI enterprise located in ward 14, district 11 of Ho Chi Minh city. A recycling enterprise, COSI runs glass and plastic furnaces. A total of 346 workers are employed in the enterprise. Most of the workers have secondary education, but male workers have higher education and more vocational training on an average than women workers. None of the workers is a member of the enterprise's trade union, which is the only formal organization that protects workers' rights.

The enterprise is headed by a management board, which is made up of five men. The enterprise is divided into 10 workshops. Each workshop is led by a workshop leader, who is also a worker. All these workshop leaders are men. Women comprise 45 per cent of the workforce and most of them are floor level workers, few in leadership positions. The workshop floor is typically very polluted and dirty, with few efforts being made to protect the workers' health.

Despite comprising almost half of the workforce, women do not hold any decision-making position or have a voice in the enterprise. Interviews with employees showed that this situation is mirrored at home. Men exercise greater decision-making power than women within their families. Most women workers have large families (more than three children) because they are unable to negotiate the number of children with their husbands.

Pollution

Air pollution in Ho Chi Minh city is quite high and is caused mainly by fuel burned in factory furnaces. Coal, wood, diesel oil (DO) and fuel oil (FO) are commonly used; they emit dust, SOx, NOx, COx, and toxic gases such as SO3, aldehyde and carbon hydro, all of which have a negative impact on the human health and environment. In addition, small enterprises such as COSI also cause environmental problems due to wastewater and solid waste. All the small enterprises use glass waste as raw material. In the storage area, the raw material is cleaned before melting, and the wastewater from this cleaning causes pollution. The wastewater discharge gives off a bad odor and causes diseases among workers. Fuel spillage leads to fuel waste and pollution. The workers do not use masks or gloves.

...the raw material is cleaned before melting, and the wastewater from this cleaning causes pollution

These small enterprises use outdated technology. Even small workshops use up to 1 ton of fuel per day, with the larger ones using 5 tons daily per furnace, mostly diesel oil or fuel oil. The exhaust fumes damage both the environment and human health. Small scale industries use waste products as raw material for production, which leads to increased pollution in terms of dust and noxious smells. The environment around the furnace was extremely polluted, due to the glass and plastic rubbish used as raw material, and the smoke, dust, SOx, NOx, and COx being emitted by the furnace at temperatures of 250°C.

A survey by the project team found that only a few enterprises had air pollution control systems. Even these were extremely old and did not meet environmental protection standards. Emissions are piped to Tower 1 where clean water is used to reduce the temperature and the dust using a water ejecting system. The emissions are then piped to Tower 2 where the SO2, NOx, and COx are neutralized using 5 percent liquid sodium hydroxide (NaOH). The heavy air pollution not only impacts the working environment, but also the community, as gaseous emissions spread quickly into the environment and impact a larger area.

Gender in enterprise

As reported earlier, 45 per cent of the workers in the enterprise are women, and all the women work at the floor level. Between 2000 and 2004, several studies were conducted in Vietnam to test employees' awareness about their working conditions. The results showed a significant gender difference, with men having a better awareness of what constitutes good working conditions than women. Women and men employees have different capacities and vulnerabilities with regard to information dissemination, due to their different roles at the workplace and in the family and community. Men are more likely to hear warnings due to their movement in the public space and their access to various channels of communication, such as radio, TV, informal community networks and their interaction with one another. Women have limited access to information and knowledge related to the impact of air pollution and working conditions because they spend more time with their families and have less mobility in the community.

All employees work without safe clothing. They also work very close to the furnace. As a result, the toxic fumes and hot temperature impact their health. Employees in workshops are prone to diseases relating to the nose, eyes, lung and skin. Cancer cases are much higher among the workers than in the general population. Data from the community showed that about 25 per cent of the women and 20 per cent of the men working in these workshops suffer from skin allergies and pneumonia. During the summer, dyspnea is a major concern. Workers generally understand the correlation between air pollution in the workplace and poor working conditions at the workshop.

There is a clinic in the enterprise providing free medical service for workers. During the interview, the head of the services said: "More women workers come to this center than men; most of their diseases come from poor working conditions and polluted air. The rate of sickness among women workers is higher than that of men, as their positions in the workshops are more dangerous than those of men. They have to work

More women workers come to this centre than men; and most of their diseases come from poor working conditions and polluted air

Women and men are affected differently by air pollution due to various factors including their differing roles and duties in society and women's low position in the production chain which requires them to work in polluted environments

with the noise, polluted air, and without any safety equipment. Men are in a better condition than women as they do not have to work directly with the raw materials. However, even if both of them work in the same poor working conditions, women are more vulnerable than men workers because it directly affects their reproductive health."

Women and men are affected differently by air pollution due to various factors including their differing roles and duties in society and women's low position in the production chain which requires them to work in polluted environments with bad odors and poor sanitation.

The clean air project

With the financial support of a local NGO, a project was implemented to demonstrate an air pollution treatment model and develop a more environmentally friendly workplace. The project aimed to install an air emission control system to reduce air pollution and raise awareness among employees about working conditions and air pollution at work. The project was implemented over a period of two years.

The overall project objectives were: (1) to demonstrate a model for air pollution treatment, (2) create a better work environment by installing an air emission controlling system to reduce air pollution, and (3) raise employee awareness about working conditions and air pollution at work. The project focused on applying model technology for air pollution treatment, educating workers about occupational health safety, and raising awareness about environmental protection for the workers. Specifically, the project put in place several measures to mobilize and empower both women and men employees. These included:

- Gender sensitization and awareness for the employees
- Build women's capacity and give them a voice in decision-

making during the implementation of the project in the enterprise by ensuring the equal representation of women and men in the project's committee
- Promote adoption of the model technology for air pollution treatment system with women's participation.

The project team understands that the participation of women workers in the project is very important and the success of the project depends on it. Therefore, the first step is to encourage women's involvement by motivating them to present themselves as leaders who can contribute to the community's development and help them develop new social relationships and roles for themselves.

The representative of the project team also met the trade union leaders of the enterprises (who were all men, and not floor-level workers) and all the employees to promote public debate, organize project activities and mobilize employees' involvement. The trade union's support is critical for the implementation of the project because they are in charge of all issues related to living standards and health of the workers in the enterprise. The project also held a public hearing with the ward committee to share the community concerns and explain the project goals.

At the beginning, most of the workers did not support the idea of women leading the project activities.

A project committee was formed to manage and implement the project. It comprised of three women and two men. This project committee was responsible for the purchase and installation of the technical model, financial auditing and payment of bills. The three women in the project committee were selected by the women workers in the enterprise for their activity and ability to speak before many people. Besides, they had the ability to manage the project funds. Ms. Huong was elected leader of the project committee with the support of the NGO.

At the beginning, most of the workers did not support the idea of women leading the project activities. Many men did not want to let women manage the money because they were afraid that women did not have the skills to manage funds. Some men even said that a committee that involved women would not survive because women talked too much and were not as educated as men. The project team spent a lot of time with the leaders

> From the beginning, I felt it was difficult and I would not be able to undertake this task. I thought it was better for men to take on this role since they are more familiar with leadership, and workers would listen to them.
>
> — Ms Huong

of the enterprise to persuade them of the importance of women's participation in the project.

The project committee also organized workshops to educate workers on gender issues, the different roles women and men can play in society and how they could all benefit from increased gender equity and gender equality. These workshops helped change the minds of women and men workers. Finally, the workers decided to have equal representation of women workers in the various committees for the project implementation. One male member of the Project committee said: "I never knew the potential that women have. I thought it was only men who make things happen in a given community. I appreciate being able to work with women. It is a wonderful combination and it is great chance for us to share experiences".

Social concerns in technological interventions

To install the appropriate clean technology for air pollution reduction, a survey was carried out to investigate the level of air pollution from small scale glass recycling industries and to identify the appropriate cleaning technology to reduce air pollution. After this, a workshop was held to share the results of the survey with the workers. It gave the workers a chance to learn how air pollution impacts their health. The workers are usually very busy, and women workers also have to complete their housework after work. It was, therefore, very difficult to get them to assemble after 5 pm for workshops and meetings. To ensure their participation, the project scheduled meetings at timings convenient to women and provided financial support to compensate for the time spent in meetings.

Because the project committee was headed by a woman, it caught the attention of workers who wanted to see how she would lead and manage

the project. Ms. Huong, the leader of the project committee, said: "From the beginning, I felt it was difficult and I would not be able to undertake this task. I thought it was better for men to take on this role since they are more familiar with leadership, and workers would listen to them. However, with the encouragement of the project team, I accepted leadership of the committee. I was very lucky because they gave me opportunities to participate in training programs to build and develop my capacities to implement the project. I feel confident to give my comments and did not feel shy during discussions, even about the clean technology installation. I also learnt a lot from the two male members of the committee. The project gave us a wonderful opportunity to change men workers' views about women workers positively."

The activities of the project committee far exceeded the expectations of the NGO. To raise the awareness of the workers on the working conditions and the impact of air pollution, the committee members published a small leaflet with pictures and simple words which would help them relate the poor working conditions with specific diseases. They were also shown documentaries on occupational hazards.

Besides installing clean technology, the workers also participated in three training programs: raising awareness on gender equality; hygiene and sanitation; and maintenance of clean technology. The representation and participation of women in this training was an important requirement of the project. When the project wanted to brainstorm, workers were divided into two groups, one of women and one of men, to ensure that the voices of women were heard. In a group of women, women feel free to give ideas.

Gendered impact

After the project was implemented, the environment at the enterprise has improved with the installation of cleaner technology. Both women and men workers participated actively in implementing the project. The project brought opportunities for women and men to work together and women were able to prove their ability as leaders and active participants and good counterparts to men during the project implementation.

A side-effect of the project was that it empowered women workers to participate in the enterprise's activities after Ms. Huong fulfilled her task successfully as leader of the project committee. Ms. An, a woman worker, said: "Now, in the enterprise meetings, women feel more confident to

A side-effect of the project was that it empowered women workers to participate in the enterprise's activities

stand up and share their thoughts with the leaders of the enterprise. This did not happen before the project implementation. And as leaders of the enterprise, men now recognize the capacity of women. They want to have a women's representative in the leadership group. Women really have a voice."

In retrospect, the successful implementation of the project may be attributed to women's participation and their having a voice in the technical model used to reduce the air pollution; arrangements for financing the clean technology; and the training given to both women and men to manage the new technology.

A report from the clinic showed that the rate of infection of pneumonia and dyspnea has been significantly reduced. The clean technology has really had a positive impact on the workers' health. But more than that, workers had the opportunity to work together and their view on women's ability has changed. The work the women workers did on the project committee took them out of their traditional reproduction-focused gender roles. It involved them both in the public leadership and in taking on non-traditional tasks such as the installation of the technical model, and becoming a member of the project committee to add their voice to the management and implementation of the project in the COSI enterprise.

After the project implementation, one female worker was elected the leader of the enterprise's trade union. Of the 10 workshop leaders, three are women. Mr. Hung, the director of the enterprise, said: "The project brought more benefits than we expected. We realized that our workers took on lots of things at the same time. The fact that women were in charge of leading the project presented a real opportunity for us to see the women's capacity and that increased the leadership in the enterprise. We saw that if women and men work together in partnership, the work will be done effectively, and therefore, it will increase the collaboration between women and men. For our enterprise, since we have a woman leader of the trade union, the health issues of women workers have received attention because she understands the situation of women much better than us. And if the female workers are healthy, the employer will benefit because women are a very important part of the labor force and crucial for the growth of the enterprise. The male workers also have very positive views

on women's capacity. In the near future, this project and the action models have represented the best model to increase women's involvement within the small enterprise like our enterprise."

Questions

1. How are women and men affected differently by air pollution in this context and why?
2. What is the advantage of having women leaders?
3. What supports do you think have been effective in enabling women's participation in improving the work environment?

18

Reducing indoor air pollution

Hor Sophea

Cambodia has experienced decades of civil war in recent history. Of the 6,647,000 people (as of 2005) who live in the country, women comprise 52 per cent. About 20 per cent of the population lives in urban areas, while the remaining live in rural areas. The urban area in the country has been growing at a rate of 8 per cent. Every year, a huge number of rural people migrate to the city for employment and this has led to the expansion of urban areas in the country. Rural poverty and comparatively better employment opportunities in the urban area are the push-pull factors for the growing rural-urban migration.

Gender equality is the constitutional provision of the Royal Government of Cambodia (RGC). The RGC has made good strides to promote gender equality and improve the status of women. Establishment of a full-fledged women's ministry (called Ministry of Women's Affairs), Cambodian National Council for Women, Technical Working Group on Gender (TWGG), and Gender Mainstreaming Action Group (GMAG) in each ministry, adoption of five-year strategic plan (called Neary Rattanak) which focuses on women's capacity building and integration of gender perspectives in major national development plans including the National Poverty Reduction Strategy (NPRS). The RGC has also made good legal reformation. In 2005, a law on domestic violence was adopted. Laws on trafficking, marriage, divorce, HIV/AIDS, and rape make adequate provisions for the protection of women's human rights.

Despite efforts by the government to promote gender equality and improve women's status, there is still much to do in many areas or sectors. Some areas of concern are the under-representation of women in the national parliament, local governance and public services; higher drop-out rates among female students at higher level of education; teaching of *Chbab Srey* – the traditional code of conduct that legitimizes women's traditional roles and relations in school; high maternal mortality rate and poor nutritional status among women; high prevalence of domestic violence, growing rate of HIV/AIDS transmission among housewives and pregnant mothers; occupational segregation and concentration of women in low-waged and unskilled labor sectors; and the higher rate of poverty among women, particularly in rural areas.

Gender issues in urban environmental management in the country have

Despite efforts by the government to promote gender equality and improve women's status, there is still much to do

never been identified and reported either by the government or by civil society organizations. Gender discourses in urban environmental management in Phnom Penh is relatively new and contemporary. Women's differentiated needs, interests, scopes and limitations, particularly in relation to air pollution have never been considered and addressed in the municipal plan, policy, program and service delivery.

Outdoor air pollution is not a major problem in Phnom Penh city. But commuters and people living along some arterial roads in the city suffer from dust as the roads are unpaved and construction work is always in progess in the vicinity. Spillover of construction materials such as sand, cement, brick, etc. from on-going construction works along the road is the major source of dust all around the city.

Furthermore, many poor people living in urban and peri-urban areas use wood and low-grade charcoal, which emit higher amounts of smoke and dust

Indoor air pollution has long been identified as a major problem in the city and biomass such as charcoal and firewood are the main sources of this pollution. Phnom Penh consumes 38.8 per cent of the total charcoal produced in the country; while other urban areas consume 11.3 per cent and rural areas only 0.9 per cent. Many people in Phnom Penh use charcoal as the main source of household and cooking energy. The use of the charcoal is prevalent not only in poor communities, but also among higher income groups. Furthermore, many poor people living in urban and peri-urban areas use wood and low-grade charcoal, which emit higher amounts of smoke and dust.

There is a direct relationship between indoor air pollution, especially due to pollution from cook stoves and the health of women and children, who spend more time at home and in the kitchen. Exposure to indoor air pollution can cause acute lower respiratory illness. Other indoor pollution related diseases include asthma, reproductive problems such as low birth weight, prenatal mortality, accidental burning and risk of fire.

While women, girls and small children suffer the most due to indoor air pollution, women from poor economic classes are worse off in terms of the impact of indoor air pollution as they cannot afford higher grade charcoal (that generates less smoke), improved cook stoves (that also generate

Given women's lower access to information, educational levels, and limited time for themselves, it is difficult to increase their awareness about the health risks of indoor air pollution.

less smoke), a separate kitchen, or less polluting fuel such as LP gas to cook daily. Lower awareness among poor women about the adverse effects of smoke on health is another reason for women's higher vulnerability to indoor air pollution. Given women's lower access to information, educational levels, and limited time for themselves, it is difficult to increase their awareness about the health risks of air pollution.

The following cases reflect the severity and vulnerability of indoor air pollution among some specific groups of people in the city.

Case I: Breakfast vendor

Ms. Chhay Pheap is a 45-year-old mother of five children. Her husband is the chief of village 22 of commune Bangkok II in Toul Kok district, Phnom Penh City. Ms. Pheap and her family moved to Phnom Penh from Takeo province around 20 years ago, due to severe drought in the province. She has been selling breakfast along the road since then. With this, she earns a meager income of 1,000-2,000 Riel[1] per day.

Ms Pheap is aware that this work is labor intensive and her profits are minimal, but without any other skills, she is unable to find another job. Everyday, she wakes up very early to cook food for sale. Before any other members of the family wake up, she cooks rice, fries meat and washes the dishes and plates which clients use. She spends long hours in the kitchen frying meat and has noticed the adverse impact of the firewood smoke on her health, including coughs and colds and eye burning. Her children who spend time beside her also face similar health problems. But the biggest impact is on her as her exposure to smoke is the highest. Ms. Chhay Pheap uses low-grade firewood instead of charcoal or higher-grade wood to keep her expenses low. However, the low-grade firewood generates more smoke. She also prefers wood over charcoal as it allows her to cook faster.

Ms. Pheap's husband is the village chief. He spends most of his time in community development work which is unpaid in most cases. He barely earns enough to cover his expenses. Sometimes, he rents out the village

microphone during ceremonies to earn some income. She herself makes all the day-to-day decisions in the family. Big decisions such as buying motorbike, TV and similar things are made jointly.

Activity profile of Ms. Pheap and her husband

Activities	Husband	Wife
Wake up	6:30am	4:00am
Put the house in order	—	X
Wash plates and cooking utensils	—	X
Collect and wash clothes	—	X
Fold up mat, mosquito net and blanket	—	X
Cook rice, fry meat to sell for breakfast	—	X
Sell breakfast in the market	—	X
Go to market buy food to eat and sell	—	X
Cook lunch	—	X
Village work	X	—
Hire microphone to people sometimes	X	—
Take care of the children	—	X
Prepare dinner	—	X
Sleep	8pm	9pm

Ms. Pheap cannot stop this work even if it affects her health as she has no skills to find other work. Some times, she protects herself by blowing smoke away or covering her face while cooking. When she sought medical treatment for her eyes, doctors advised her not to sit near the stove. But this is not possible as she has to make a living by cooking.

Case II: Snack vendor

Ms. Kan Sam is a 49-year-old mother of six children. She is illiterate and lives in Bangkok II commune in Toul Kok district, Phnom Penh City. The entire family migrated from Prey Veng province. Her husband stays home and does not work. Ms. Sam sells fried fish (a popular Khmer food) along the road. Without any education or capital, she believes she has no other avenues for income generation. Everyday she fries fish at home and sells it along the road in the evening. She earns 4000-5000Riel per day. She is the main income earner of her family. With this income, she has to pay house rent, utilities, food and school fees.

She has to stay long hours in the kitchen to fry the fish. She uses fire-

wood as she does not have money to use gas stove or charcoal. She says,

> Even though I know that smoke from firewood affects health but I cannot but to use it. I do not have money to buy charcoal or gas stove.

She said that her daughter who usually helps her to fry fish gets some health problems such as sneezing and respiratory problems. Nowadays she does not allow her daughter to sit in the kitchen. Her husband also helps her in frying fish. Ms. Sam has also lung-related problem caused by smoke in the kitchen. She said that she does not have money to buy a mask and glasses to protect nose and eyes while cooking. Generating an activity profile of the family will help us understand the roles and responsibilities of each member of the household.

A day in Ms. Kan Sam's household

Activities	Husband	Wife	Daughter
Get up	4:30am	4:30am	4:30am
Put house in order	—	X	X
Wash plates and pots	—	X	X
Collect and wash clothes	—	X	X
Fold up mat, mosquito net and blanket	—	—	X
Clean house	—	X	X
Fry fish for sell	X	X	X
Cook lunch	X	X	X
Cook dinner	X	—	X
Buy fish	—	X	X
Sell fried fish	—	X	X
Sleep	9:30pm	9:30pm	9:30pm

Questions:

1. Why are women more vulnerable to indoor air pollution?
2. Apart from financial constraints, what are the other constraints that women and men would have in reducing vulnerability in indoor air pollution?
3. How can we reduce vulnerability to indoor air pollution for women and men? What are the possible interventions?

SECTION: 6
GENDER IN INTEGRATED ENVIRONMENTAL MANAGEMENT

An overview

This section looks at gender issues in Integrated Environmental Management (IEM), including all or several of the sub-sectors discussed in the earlier sections. IEM deals with the entire gamut of urban environmental issues — ranging from water, sanitation, air pollution to garbage disposal. Urban areas are typically split into areas at the centre which have access to a range of services, and areas at the periphery without access to most facilities and services. Increasingly, IEM has become critically important in the peripheral areas.

Most projects, therefore, focus on mobilizing people to clean the solid waste, clean the water body, and finally, put in place systems to collect solid waste and build waste water processing systems so that polluted water is not drained into the water body. In all these processes, it is often women who are the main workers as they are the carers and cleaners in the traditional family system.

IEM would normally require a holistic approach to improving the lives of people in the community. Thus if a participatory approach is taken, it has a larger impact in terms of improving the lives of women and men in the community and changing gender relations. However, if IEM is implemented in a purely technical manner, without any consideration of people's participation or gender relations in the community, it will not have a sustainable effect.

A gender perspective in IEM allows us to include women at different levels and in various positions, offering them opportunities in decision-making, income-generation, management and skill development. The entire process of cleaning the polluted environment can be an empowering one, if it is handled with a gender perspective.

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Cleaning up the waterways

Romyen Kosaikanont

Chiang Mai is the capital of northern Thailand. Located approximately 700 kilometers from the capital, it is second only to Bangkok in terms of its level of urbanization, size of the economy and population. The administration of Chiang Mai City Municipality is divided into four districts: Nakornping municipal district, Kawila municipal district, Mengrai municipal district and Sriwichai municipal district. These districts comprise 18, 26, 20 and 17 communities, respectively. Covering an area of around 529 square kilometers, Chiang Mai has a total population of 1.66 million, of which 0.82 million are men and 0.84 million women (Chiang Mai Province, 2007). The population density is 1,308.41 inh/km². Over the past 20 years, Chiang Mai has grown drastically in terms of economy and level of urbanization. This has led to a huge increase in population due to migration and the problems of pollution and urban environmental management have followed (Chiang Mai Municipality, 2007).

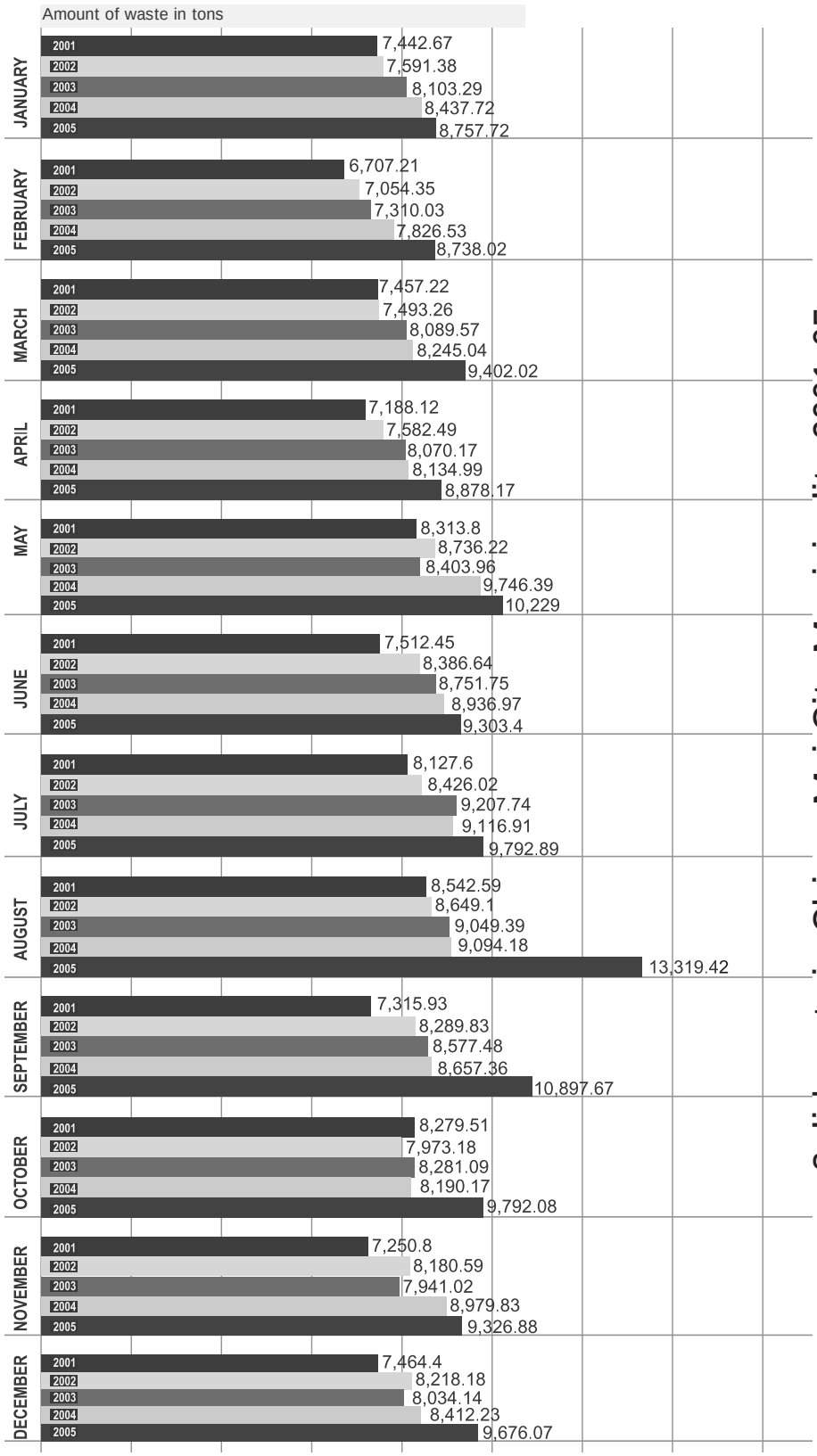
Solid waste crisis

In 2000, Chiang Mai experienced a major solid waste management crisis. According to the Chiang Mai City Municipality, the problem with the solid waste management stems from two main reasons. Firstly, the high demand for land during the economic expansion and increasing population led to a shortage of space for dump sites. Further, people living around prospective dumpsites have no confidence in the treatment system and hence they protest against the dump site.

Secondly, the solid waste collection system is inefficient and insufficient. In the past, the subcontracting companies responsible for solid waste collection did not have enough resources i.e. trucks to transport the solid waste. Many roads are too narrow for trucks and hence the waste is uncollected.

Chiang Mai generates 323.59 tons of waste per day. Much of this is left uncollected. Very often, individuals have to transfer the waste to neighboring towns or open dumpsites, including canals and other river ways.

In addition to the problem with solid waste management, Chiang Mai also faces water pollution. In Chiang Mai, there are many natural water sources, but the main rivers flowing through the city are Ping River, running from North to South, and Mae Ka and Ku Wai Canal running across the town. In 2003, the Chiang Mai Municipality surveyed the quality of water and found that the water was severely polluted. All the river and


Solid waste in Chiang Mai City Municipality 2001-05
Amount of waste in tons
JANUARY
2001 7,442.67
2002 7,591.38
2003 8,103.29
2004 8,437.72
2005 8,757.72
FEBRUARY
2001 6,707.21
2002 7,054.35
2003 7,310.03
2004 7,826.53
2005 8,738.02
MARCH
2001 7,457.22
2002 7,493.26
2003 8,089.57
2004 8,245.04
2005 9,402.02
APRIL
2001 7,188.12
2002 7,582.49
2003 8,070.17
2004 8,134.99
2005 8,878.17
MAY
2001 8,313.8
2002 8,736.22
2003 8,403.96
2004 9,746.39
2005 10,229
JUNE
2001 7,512.45
2002 8,386.64
2003 8,751.75
2004 8,936.97
2005 9,303.4
JULY
2001 8,127.6
2002 8,426.02
2003 9,207.74
2004 9,116.91
2005 9,792.89
AUGUST
2001 8,542.59
2002 8,649.1
2003 9,049.39
2004 9,094.18
2005 13,319.42
SEPTEMBER
2001 7,315.93
2002 8,289.83
2003 8,577.48
2004 8,657.36
2005 10,897.67
OCTOBER
2001 8,279.51
2002 7,973.18
2003 8,281.09
2004 8,190.17
2005 9,792.08
NOVEMBER
2001 7,250.8
2002 8,180.59
2003 7,941.02
2004 8,979.83
2005 9,326.88
DECEMBER
2001 7,464.4
2002 8,218.18
2003 8,034.14
2004 8,412.23
2005 9,676.07

The cause of the pollution was traced to untreated water released from large buildings and businesses

canals were contaminated, with a high ratio of fecal coliform bacteria (ibid, 2007). The cause of the pollution was traced to untreated water released from large buildings and businesses. Some of the water pollution is also caused by households releasing untreated water. However, the survey also showed that the quality of water is seasonal. For example, the quality of water appears to be better during the rainy season, but households living along the water ways have to deal with floods of polluted water.

Among the three sources of water mentioned, Mae Ka and Ku Wai Canal are the most polluted. In 2005, Chiang Mai Municipality collected water samples from eight points along the waterways and the Biochemical Oxygen Demand (BOD) showed extreme levels of pollution. The water in both canals is muddy and gives off a very bad odor. People living in the densely populated communities along the canal have often been blamed for causing water pollution. These communities have fought back by organizing themselves and trying to prove that they are not the only cause of pollution.

People Organization for Participation (POP)

People Organization for Participation (POP) is an NGO working with slums or densely populated communities in big cities in Thailand, including Bangkok, Chiang Mai, Kalasin, Nongbualampu and Yasotorn. The main objectives of POP are: (1) to advise communities to carry out community development work; (2) to educate communities to create their own development support networks; and (3) to support and promote human development activities and develop good citizens.

POP has a long history of working with slum communities located along Mae Ka and Ku Wai canals. POP's interventions in community development focus mainly on organizing the local people to take charge of their own development and lives. During their work with slum communities, two key issues have frequently emerged-housing and environmental problems.

Cleaning solid waste from waterways

In 1996, POP organized the slum dwellers to discuss their problems. The participants, mostly the representatives of the communities, were largely men. They identified that the polluted canal was the most urgent problem. They explained that the polluted canal, with lots of waste blocking the waterway, gave off a very bad odor and was a breeding ground for mosquitoes. Further, slum dwellers were blamed for the pollution of the water ways. The meeting therefore came to the conclusion that there was a need to improve the condition of the canal in the short run and to prove to Chiang Mai residents that these communities are not the cause of the problem but are actually helping to solve it.

A male garbage collector with his cart

The canal cleaning event was organized on 9 August 1996, and more than 700 people participated. They were mostly slum dwellers, men, women, children and indigenous people who had recently migrated to town, and were living along the canal. The event was financially supported by POP with a total budget of 20,000 baht. Chiang Mai city Municipality provided transportation for the waste collected from the canals. Women provided food and drink while the men collected the waste in the canals and cleaned the water way.

Prateep, the network coordinator, explained that the amount of waste collected from the canals was unimaginable. He recalled that:

> I then understood why the water never flowed. The amount of the waste was just unbelievable. There were these thick three layers of waste in the canals. The first layer was floated waste such as plastic bottles and alike. The second layer was the small waste i.e. plastic bags, used batteries, etc. Lastly, the thick heaviest layer lying on the bed of the canal was big waste such as refrigerators, washing machines and so on. At first, we planned to finish the job within a day, but it turned out that we had to work for 3 days in a row.

Cashing in on waste

The participants, both men and women, led by Prateep, then discussed what to do with the huge amounts of waste collected. POP suggested and the communities' network committees agreed that the waste should be separated and sold for recycling. The money gained from the sale was used

for further network development.

Following the event, the participants again got together to discuss the lessons learnt and planned how to keep the canals sustainably clean. The women's group suggested raising awareness about canal conservation among the youth. Panngam Sommana, a divorced woman with two children and a member of the network committees explained that:

The truck used to collect garbage

> We (women) then thought that if the youth were aware of the environmental issues, they can keep the canals clean. We taught them to love their canals and see the canals as part of their daily lives. We did that by organizing a canal tour for the youth group every two weeks on the weekend. In doing that, they learnt for themselves that there were many people other than their households who released untreated water into the canals.

After participating in the project, both girls and boys became aware of the importance of canal conservation and stopped dumping waste into the canal. During the tour and waste collection, they also learnt that the waste could be sold for cash. Money earned from the sale of waste was saved by the communities' saving groups. The savings of the youth was mostly used for their education. The condition of the water improved significantly. It was observed that the water started to flow and there were eels and other kinds of fish in the canal for the first time in a decade.

Banking on garbage

The communities' network coordinator, Prateep called for another meeting with all committees to discuss the establishment of a garbage bank in order to store and buy household waste and waste collected from the canal. The project was later known as Chiang Mai Puang Sa-ard.

As many of the men were already garbage collectors, they had some knowledge about how to separate the garbage. But at the household level, women were responsible for separating and managing the waste. At the beginning of the Chiang Mai Puang Sa-ard, there were 15 committee members, 9 women and 6 men. This committee managed and took decisions regarding the bank. Women were actively involved in the project as waste separators. Women were also in charge of the book keeping. Men, on the other hand, mostly rode around on tricycles to buy the waste out-

side and within the communities.

The bank has done relatively well in the first year, and the profit was enough to buy a pick-up truck worth 70,000 baht. Approximately 15 people quit their permanent jobs to work in the project. Most of them were men.

The bank took on approximately 100 members, all of them men. Prateep explained that this was because men were the household heads. Apart from the members from the communities, the bank also expanded membership to the homeless. This was for two main reasons. First, the homeless people were already waste pickers. Second, being members of the group meant that they could gain access to loans to buy carts and hence access better income-generating activities.

Prateep explained that the bank has helped to reduce the local government's burden by cutting down the budget for waste collection and improved the environment by reducing the amount of waste. Moreover, both men and women who sold the waste appeared to have better access to extra income. However, it was apparent that the waste women sold to the bank was mostly household waste whereas the waste sold by men was mostly collected or bought from within and outside communities. The money earned by women tended to be spent on food and children, whereas the money earned by the husbands tended to be divided into two parts i.e. some portion was given to the wife for household expenditure while the rest was kept by the husband for personal use.

When waste is gold

The bank has now been operational for almost 10 years and is considered the oldest recycling bank in Chiang Mai. However, the bank has experienced a crisis and is expected to be closed down in a few months. Peeh, a male community's member and the current manager of the waste collection point, explained that the bank has run into trouble because people in Chiang Mai have become increasing aware of the value of recycling waste through the outreach waste collection. He stated that "the waste is no longer a waste. People now think that waste is gold." Because of this attitude, more people have started to separate the waste in the households and many private recycling companies have emerged. The emergence of private companies that offer higher prices for the waste has left the community-based recycling bank vulnerable and unable to compete because of its limited capital. Moreover, the land owner who rented out the land to be

used as a bank has decided to let the land out for other businesses.

When asked "If the bank has to stop its activities, do you think the project is a failure?" Prateep responded that:

> I don't think so. Although we first used money as an incentive for people to separate and sell the waste, our ultimate goal was actually for people to be aware of environmental conservation. If the bank has to be closed because people are so competitive in separating the waste and it was so competitive of the business in buying the waste, I took it that the project was a success in raising awareness of the people overall.

When asked "How do you think the bank has affected people?" Prateep answered:

> The community overall is much cleaner. The amount of waste has reduced drastically. Women see the worth of the waste and can save more money generated from the waste. You can see this from the savings account of the women at the communities' saving group, which has mounted. For men, they took this job seriously. It gave them hope. Some men became more responsible and become early risers and very diligent because they have to go early to get to the source of the waste.

POP and communities' network committees are discussing how to resolve the problem facing the Chiang Mai Puang Sa-ard project.

References

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Chiang Mai Province (2007). www.chiangmaiprovince.go.th (26 February 2007).

Questions:

1. What are the roles women and men played in this project?
2. If you are to design this project, how would you design it so that it will be gender sensitive from the start?
3. This project has supported gender stereotypes and assigned gendered roles to people. Support this statement with examples from the case study.

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Changing life in the slums

Outhaki Khamphoui

Nong Duang Thong is an urban village in Sikhottabong District, Vientiane Capital, with 1,684 inhabitants and 290 households, organized in 18 groups. Since 1960, people migrating from the Northern Provinces to Vientiane due to the war have been settling in this area. The community was steadily growing with the addition of new families, relatives of early migrants. A few families who moved from rural to urban areas for work in the last few years also live here. The population living in the center of the village has urban facilities like other villages in the Capital. But people living on the converted paddy fields at the periphery and next to the Lake, namely the five residential groups (No 3 - No 7), lived in very poor conditions with little urban development. The population consisted mainly of refugees and migrants who had settled at the site over the past few decades. This area was therefore selected for an urban development project.

The population of the community is 550 persons, 302 women and 248 men, living in 78 households, 24 of them headed by women. The percentage of women-headed households is very high at 30.7 per cent, while the national average is 10 per cent. They are mostly widowed as the husband died due to disease or alcohol consumption. Some women are divorced with small children and they have to support the entire family. Some are self-employed as recyclable waste buyer/sellers. The houses are very narrow and close to each other, with hardly any empty spaces. There are some brick houses, but most people live in temporary wooden or thatch houses, at a relatively high density of seven persons per household.

Most community members work as workers or laborers. Almost 60 per cent of the men are involved in building construction, or are employed in a slaughterhouse. About 40 per cent of the women work in garment factories or as retail vendors in nearby markets. About 10 per cent of the women and men are waste pickers/sellers of recyclable material. Interviews with the community revealed that most of the families (58 per cent) earned less than US$50 per month, while 29 per cent of the house-

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holds earned about US$ 50-100 per month, only 13 per cent earned more than US$100 per month.

No water, no toilet, no solid waste disposal

The results of the socio-economic survey in January 2006 showed that the community lacked potable water, had poor drainage, inadequate and unsanitary toilet, and scattered disposal of solid waste. Absence of these services lead to the accumulation of rain and wastewater from bathroom and kitchen — a breeding ground for germs and insects. The air was polluted with the smell of garbage and other refuse.

Most villagers collected water from public wells. People, mostly women, transported buckets of water on their shoulders, or by cart. Five households had piped water connections; while seven had their own underground water with pumps, which they in turn sold to the neighbors through pipelines. Users paid them a monthly fee. Women said they had to use water sparingly while washing clothes or cleaning, especially in the dry season when water in the well sank further. For drinking, villagers bought purified water in 20-liter bottles for $0.30 each, adding up to US$ 3 per month.

There was no communal toilet in this area. Only 14 per cent of households had toilets with septic tanks; 75 per cent had soak pits with a concrete ring or drums; and 10 per cent had no toilet at all. They shared a toilet with their neighbors which were mostly unclean. In some households, the cylindrical drums were broken, and the bad odor affected the micro environment.

Household toilet status in Nong Duang Thong village

Types of toilet	Number of Household	Percentage
Septic tanks	11	14.1 %
Pit using concrete rings	47	60.2 %
Pit using drums	12	15.3 %
No latrines (share with others)	8	10.4 %
Total	78	100 %

Source: URI Socio-economic survey - Jan 2006

There were two main drain canals along the main roads to drain waste water from Nong Douang Thong Village. However, they were not well maintained and were covered with soil, weeds and garbage.

Topographically, the area was lower than the canals and further, there were no secondary drain canals to connect the sewage water to the main road

Topographically, the project area was lower than the canals and further, there were no secondary drain canals to connect the sewage water to the main road. Hence, rainwater and wastewater from households could not be discharged into the main canals. This caused flooding and water stagnation, which in turn bred mosquitoes, germs and the entire area was enveloped in a bad odor.

Garbage was placed in the household bin, without selection at source. The collection truck collected waste once a week and charged US$ 1.2 per month per household for the service. Around 70 per cent of the households used this service. Where houses were crowded together, the truck was unable to collect waste as there were no access roads. Community awareness on waste management was very low. Some families living in houses on stilts threw garbage under the house or into the canal. In the community, no organization was directly responsible for waste management. There was a Waste Bank which was not operational because they offered a lower price than itinerant garbage buyers.

The objectives of the project were to reduce environmental problems and improve living conditions of the community e.g.:

- Improve environmental sanitation through the implementation of community toilet and drainage system;
- Establish solid waste collection and management system in the community;
- Ensure potable water for the community;
- Ensure women's participation in project activities and promote gender equality in the poor community.

The project planned to facilitate: (1) the construction of community toilets with septic tanks, (2) install water supply pipelines, (3) construct a drainage system in the project area, (4) improve the recycle storage bin, and (4) mobilize women's participation and promote gender equality.

Participatory implementation

The project developed partnerships with many state agencies and each

had their responsibility and participation e.g. Vientiane Urban Development Authority Agency (VUDAA) took over the responsibility of solid waste collection, improvement of access road and drainage system. The Water supply Authority was responsible for authorization and technical guidance of water pipeline installation. The Vientiane Improvement Urban Environment Programme provided technical documentation and guidelines. Mass Organizations like the Women's Union, the Youth Union and the Front for National Reconstruction (organization of the elderly) were actively involved in the needs assessment and decision-making on the location of the communal toilets, feedback about its design, etc.

At the beginning of the project, baseline information was collected from both women and men regarding the drainage system, community toilet, sanitation status, waste management, water supply, health condition, drinking water quality, income status, and awareness of environmental issues. More women were interviewed than men, because most men worked outside the village.

The communal toilet constructed by the community

A series of consultations were then held with the village authority and the leaders of the village Women's Union (WU), Youth Union (LYU), and Front of National Reconstruction (FNR) to identify problems, and decide on the number and design of the interventions. The Deputy Village Head was also the head of the Village Women's Union. She was assigned the responsibility of mobilizing villagers (women and men) to participate actively in the project. During the process of community consultation, separate groups of women and men were formed and they were asked to come up with a set of needs and ideas to meet those needs. Women and men came up with the same set of needs, namely improvement of potable water pipeline, drainage, and sanitation infrastructure. They also agreed to participate in all activities to improve waste management.

Villagers were expected to contribute opinion, time, labor, and assets, including land to build communal toilets. Every Saturday, community members (both women and men, mostly girls and boys) cleaned the drains and canals voluntarily. Each person representing her/his family cleaned the areas surrounding their house. The construction of the drain canal from the community to the main canal was completed as were the communal toilets.

During the project implementation, the water pipeline was installed and households started receiving piped water supply. Women reported that before the project, each household without a water pipeline had to pay at least 8.000 kip (US$ 0.9) per day, i.e. $27 per month. But after the pipes

Women were happy as it reduced their workload and gave them more time. The water they used for cooking and other purposes was also cleaner

were installed, they paid only about 18,000 kip ($2) per household per month, drastically reducing the expenses of the family. Women were happy as it reduced their workload and allowed them more time for leisure or income generation activities. The water they used for cooking and other purposes was also cleaner. Women, men, children were trained to manage water sensibly. Women were specifically targeted as they were responsible for the household use and maintenance of water supply. The monthly water fee was collected by the three heads of the user household groups, who were women.

Waste pickers collect recyclable items

During the construction of the community canals and latrines, men and women, young people and all residents were actively involved in voluntarily cleaning the construction site. Some families contributed pieces of land which they received from state through Land Use Rights, for the toilet/bathroom building area. Elderly people motivated the youth to contribute the maximum to the project, especially for maintenance. Through this project implementation, village organizations and community members (women and men) interacted and worked together to resolve community and household problems.

Concepts and skills training

A series of trainings were conducted for the villagers, members of LWU, LYU and LFNR on various topics including maintenance of project interventions such as drains, community toilet, and water supply. More women than men attended the workshops as most men go to work outside the village. Women said that they shared the information with their men after attending the workshops.

A management group comprising of five women was organized by the community to oversee the communal toilet and waste management. Their tasks include collection of user fees; ensure cleaning of the facilities by the users and maintenance of infrastructure. For this purpose, the project has provided the necessary training in maintenance and financial management

to facilitate their work. In all, 20 user households used the two communal latrines on a regular basis. In principle, the communal toilets were free for the user, but the community decided to collect some amount for maintenance, especially in case it was damaged in future. The user fee was very low, only 1,000 kip per household per month. The collected money was deposited with the village authority cashier.

Through meetings/workshops on solid waste management, community members (especially women) took decisions regarding the location of waste collection points, storage of recyclables and improvement of household bins. Women's involvement was higher because they were the ones who dealt with the issues of cleanliness and garbage in the community and family. Though men participated in the meeting, women were encouraged to speak more and take decisions. The workshop facilitator, i.e. the village Women's Union, suggested that women from the community be trained in waste separation and sale of recyclables. A waste management committee was set up comprising of village volunteers and organized waste pickers to discuss financial matters such as service fee and collection and management of income.

To raise gender awareness among community members, a workshop was organized for both women and men (as part of the project activities). Gender roles and men's participation in environmental management issues were discussed. Women requested that more such workshops be organized for men to motivate them to be involved in household chores. The workshop was facilitated by the gender training team from the Vientiane Capital Women's Union. At the workshop, both women and men participated eagerly and stated that it was the first open discussion on gender issues in this community.

Lessons learnt

The success of the project is visible in the cleaner environment and better organized community. The complete provision of services for the basic needs (viz. potable water, drainage, and sanitation with two community toilets, and waste management with the high participation of local people, both women and men), revealed a set of effective intervention that could be replicated. As a result, women's workload has reduced, as has the time, effort and money spent on seeking water. Women and men attained access to information, gender awareness and environment management skills. The Urban Research Institute and stakeholder organizations learnt

to implement integrated infrastructure development projects. The Village Women's Union upgraded its skills as an organizer and development agent by leading the community participation process.

Questions:

1. How was women's participation ensured in this project from the initial survey till the monitoring stage? What more do you think you can do to empower women to be able to make changes?
2. How did piped water change women's lives in the community?
3. How can you make sure women's voices are heard during community consultations?

The Southeast Asia Urban Environmental Management Applications (SEA-UEMA) Project is a partnership project between the Canadian International Development Agency (CIDA) and the Asian Institute of Technology (AIT). The project's goal is to contribute to the improvement of urban environmental conditions in the South East Asian (SEA) region covering the countries — Cambodia, Indonesia, Lao PDR, Philippines, Thailand, Timor-Leste and Vietnam. It seeks to attain improved applications and sharing of sound urban environmental management policies and practices in the three key urban environmental sub-sectors (water and sanitation, solid waste and air pollution) in SEA region with gender equality and environment as the cross-cutting themes. The target beneficiaries are the urban poor — women and men in SEA.

The project ensures that all project activities take into consideration concerns regarding gender equality. In order to achieve some expected results on gender equality, the project organizes training/meetings and studies on gender equality in UEM. These assist in dissemination and capacity building in Southeast Asia.

For more information on the SEA-UEMA project and associated activities on gender equality in UEM, please visit http://www.sea-uema.ait.ac.th/.

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