A Guide to the Post-2015 MDGs: Improving Water Sanitation in Southeast Asia

Water Sanitation with Special Focus on Rural Areas

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Abstract

The purpose of this paper is to derive appropriate policy measures for improvement of rural sanitation services, which is one of the most significant sectors to be highlighted in the Post-2015 Millennium Development Goals (MDGs). Water is embedded as a central part of the MDGs as more stable source of water and better sanitation will have positive impact on other goals as well. Therefore, the paper focuses on Goal 7 Target C, halving the proportion of the population without sustainable access to safe drinking water and basic sanitation. In particular, the essay evaluates the extent to which the Goals have been achieved regarding the target and determine challenges that the issue is facing. The paper′s specific focus is on Southeast Asia, with case studies on Indonesia, Cambodia, and Lao People′s Democratic Republic. By specifically looking at the region which has shown the most progress yet with a few exceptions, the paper aims to draw implications for global rural sanitation in general. Analysis of the issue confirms that better access to clean water and adequate sanitation services will be the foundation to achieving a series of goals included in the MDGs.

Keywords: the Millennium Development Goals (the MDGs), rural sanitation, Southeast Asia, Community-Led-Total-Sanitation (CLTS), Sanitation Marketing

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Chapter 1. Introduction

Water is embedded as a central part of the Millennium Development Goals (MDGs), as it is a multi-dimensional issue and a prerequisite for achieving human security (*Thematic Consultation*, 2012). That is why this research will pay attention to the centrality of water through Goal 7 target C, halving the population without sustainable access to safe drinking water and basic sanitation. Also, Goal 4, 5 and 6 can be accomplished from the enhancement of water and sanitation services. Furthermore, Goal 2 and 3 can be achieved, as young kids or women can fetch water efficiently and save time. This can culminate in helping more children receive primary education and reducing gender disparities in the long run. Moreover, MDG goal 1 can be attained, as drinking water and better sanitation reduce health cost, environmental cost, and tourism loss. A better access to clean water and adequate sanitation services is a foundation to help achieve a series of MDG goals (See Figure 1).

Fortunately, 89% of world population now has access to improved drinking water, but there are still 2.4 billion people who are suffering from the shortage of sanitation facilities (*UN Water Global Analysis*, 2012). Moreover, there is a disparity in the amount of funds allocated to policies for drinkable water and that for sanitation, 66% and 34% respectively (*UN Water Global Analysis*, 2012). In reflection of such reality, the essay′s main focus will be on the sanitation issues.

This essay aims to evaluate the MDGs progress in Southeast Asia sanitation and to derive appropriate policy measures for improvement of rural sanitation. The time scope of the research will range from 2000 to 2013. As the case studies, Cambodia, Lao PDR, and Indonesia will be discussed for highlighting rural sanitation challenges.

The study embraces three major research findings. First, the three countries have lacked coordination between the central government and the local districts in provision of sanitation services. Second, the link between the Community-Led-Total-Sanitation (CLTS) and sanitation marketing has been weak. Lastly, monitoring mechanisms have not been firmly

established. These factors have exacerbated the three countries′ sanitation situations in the rural areas. By re-categorizing the policy framework provided by the ″UN Sanitation and Water for All″ and the ″Water and Sanitation Program″, this essay offers an inclusive policy framework with three consequential steps: institutional arrangements, program methodologies, and monitoring and evaluation. For institutional arrangements, responsibilities should be clearly distributed among different actors such as international donor agencies, national/local governments, and NGOs. Furthermore, specific policy measures that could be improved include an outcome-based incentive system at the community level and sanitation marketing to raise supply and demand. Lastly, for monitoring and evaluation, the study will introduce the concept of virtuous circle in terms of evaluation feedback. Such policy suggestions for the MDGs are expected to contribute to the on-going discussion for the Post-MDGs.

The structure of the essay is as follows. After this chapter, the MDG framework is introduced along with the literature review on sanitation situation of Southeast Asia. In Chapter 3, rationale of focusing on Southeast Asia rural sanitation will be elaborated. Chapter 4 deals with the situations and problems arising in three Southeast Asian countries. Chapter 5 derives the implications from the case studies and explains policy suggestions. Chapter 6 will give conclusion on Southeast Asia rural sanitation and discuss future prospects.

Chapter 2. Theoretical Framework and Literature Review

This chapter includes the MDGs as the general framework on which the paper is organized. By understanding the inextricable relationship between the MDGs and sanitation, the need to prioritize and resolve water sanitation issues will become evident. It will be followed by a brief review of the articles that have been covered and have contributed to the research.

2.1 Theoretical Framework

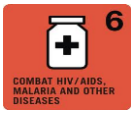
The MDGs are a set of goals which were agreed upon by world leaders in 2000 in the hope of eradicating extreme poverty. As the MDGs are approaching the deadline in 2015, reviews of past achievements and discussion on future outlook are actively taking place. With 8 goals, 21 targets and 80 indicators, the MDGs have been the framework for measuring progress of global development. While poverty was reduced in a short period of time, discrepancy between regions has been pointed out as a major shortcoming. While Goal 4 and 5 are the least achieved, Goal 7 Target C is the one farthest from being achieved in terms of target (*MDG Report*, 2012). Main criticisms on the progress rate of the MDGs were the exclusion of the poorest and the most needy in the world, ignorance on good governance and institutions, and lack of link between economic, social, and environmental aspects, which make up ″sustainable development″ (*Report of the High-Level*, 2013). In reflection of such criticisms, the UN has been working on a new framework beyond 2015, which is constituted of goals to prolong sustainable development. The framework recognizes the need to incorporate water in the future ″Sustainable Development Goals (SDGs)″.

Water supply and sanitation are incorporated in every MDG goal and contributes to socio-economic development (See Table 1). Sustainable water supply and better sanitation alleviate poverty by improving agricultural, industrial, and domestic situations. Child mortality and maternal health can be improved with safe water usage and more children can receive education with better health. . Enhanced water management leads to sustainable ecosystem and global partnership of water resource management is desirable for socio-economic situations of countries in need. Specifically, sanitation has a crucial impact on health, which affects human productivity and education opportunities. Sustainable environment and poverty alleviation are achieved because proper sanitation prevents pollution of water resources and increases agricultural production (*Water for the MDGs*, 2010).

Having adopted the MDGs as the framework for analysis, this paper will conduct research through literature review, desk study, comparison, and contrast. For literature review, various reports regarding sanitation issues in Southeast Asian countries will be analyzed.

Table 1.

Goals and Targets of the MDGs

	Goals	Targets	Paper's Focus
	Eradicate extreme poverty and hunger	Target1.A: Halve the proportion of people whose income is less than $1.25 a day Target1.B: Achieve full and productive employment Target1.C: Halve the proportion of people who suffer from hunger	Target1.A: Halve the proportion of people whose income is less than $1.25 a day
	Achieve universal primary education	Target2.A: Ensure that by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	
	Promote gender equality and empower women	Target3.A: Eliminate gender disparity in primary and secondary education, preferably by 2006, and in all levels of education no later than 2015	
	Reduce child mortality	Target4.A: Reduce by two thirds, between 1990 and 2015, the under-five mortality rate	Target4.A: Reduce by two thirds, the under-five mortality rate
	Improve maternal health	Target5.A: Reduce by the maternal mortality ratio Target5.B: Achieve universal access to reproductive health	Target5.A: Reduce by three quarters the maternal mortality ratio
	Combat HIV/AIDS Malaria and other diseases	Target6.A: Halt and reverse the spread of HIV/AIDS Target6.B: Achieve universal access to treatment for HIV/AIDS Target6.C: Halt and reverse the incidence of malaria and other major diseases	
	Ensure environmental sustainability	Target7.A: Integrate the principles of sustainable development Target7.B: Reduce biodiversity loss Target7.C: Halve by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation Target7.D: Achieve improvement in slum dwellers	Target7.C: Halve by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation
	A Global Partnership for development	Target8.A: Develop an open, rule-based, non-discriminatory trading and financial system Target8.B: Address the special needs of least developed countries Target8.C: Address the special needs of landlocked developing countries and small island developing states	

Note: Data adopted from UN Millennium Development Goals official website.

Chapter 3. Overview of Sanitation Issue

This chapter discusses general sanitation issues and provides rationale for this paper′s focus in Southeast Asia. In 3.1 under global level, four rungs of sanitation and global coverage are discussed. In 3.2 under regional level, rural sanitation of South East Asia is elaborated.

3.1 Sanitation at the global level

In the global level under the MDG framework, Goal 7 target C requires further improvement, especially in sanitation. Access to improved sanitation facilities increased from 36% in 1990 to 56% in 2010 in the developing regions, but despite progress, 2.4 billion in developing countries still lack access to them.

According to a four-rung ladder (See Figure 1) designed by WHO/UNICEF JMP (Joint Monitoring Programme), the rungs are open defecation, unimproved sanitation facilities, shared facilities, and improved sanitation. The key issue of sanitation is increasing the proportion of improved sanitation facilities, especially up to the final rung. Each rung of the ladder represents a higher unit cost but a correspondingly lower level of health risk.

3.2 Sanitation in Southeast Asia

Southeast Asia has shown the greatest improvement in meeting the MDG target, demonstrating high potential to scale-up sanitation and to provide sanitation policy framework that can work globally. Since 1990, 194 million people in Southeast Asia gained access to an improved sanitation facility (*A Snapshot*, 2012).

In Southeast Asia, urban sanitation coverage of improved facilities is 79%, with countries such as Malaysia and Singapore reaching 100%. However, rural sanitation of improved facilities is 60% with 20% of open defecation. Among Southeast Asian countries, Cambodia, Lao PDR and Indonesia, show severe lack of rural sanitation coverage of less than 50%. Indonesia shows low coverage of 36% in rural sanitation. In addition, among the 78% of Cambodia′s population living in rural area, only 18% have improved sanitation. In the case of

Lao PDR, 69% of its population lives in rural area and only 38% of them have improved sanitation. Due to serious urban-rural disparity in the region, this paper focuses on rural sanitation in Indonesia, Cambodia, and Lao PDR (*A Snapshot*, 2012).

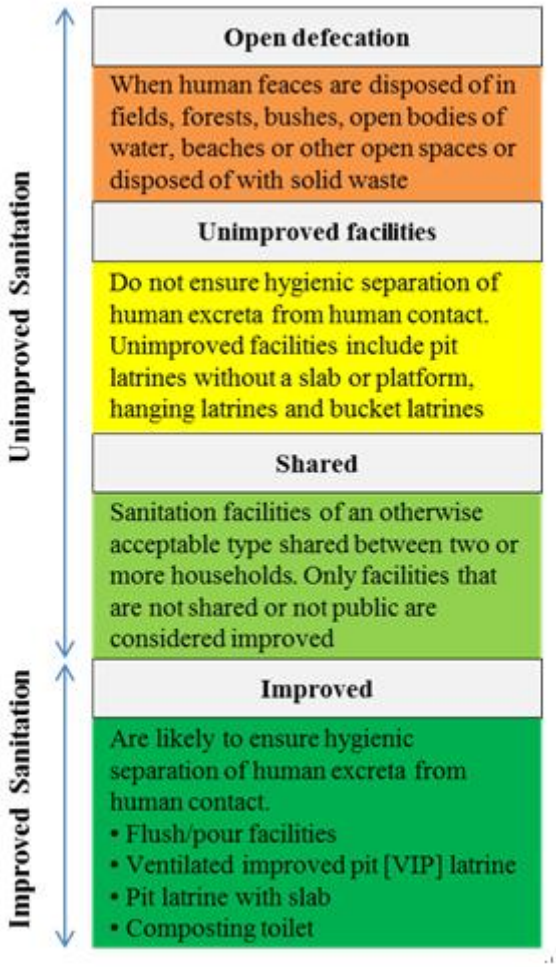


Figure 1. Sanitation Ladder (WHO/UNICEF JMP, 2013)

Chapter 4. Case Study on Southeast Asian Sanitation Situation in Rural Area

This chapter begins with a chart introducing the basic information of countries (See Table 2), followed by detailed sanitation situation in each country. Next, the impact of better sanitation in these countries will be examined, not only in economic terms but also in social terms. Last, how respective country is dealing with sanitation issue will be observed along with the problems of such approaches.

Table 2.

Country Profile: Indonesia, Cambodia, and Lao PDR

	Mainland /Insular	Population	Gross Domestic Product (billion, USD)	Rural Population Percentage, Number	Others
Indonesia	Insular	240 million	846.8	49%, 117.6 million	Archipelago, 4th most populous country
Cambodia	Mainland	14.8 million	12.8	80%, 11.8 million	Bordering Vietnam, Thailand, and Laos
Lao PDR	Mainland	5.5 million	8.3	73%, 4 million[1]	Located in Greater Mekong sub-region in East Asia

Note. Data adopted from 2010 World Population Data Sheet (2010), Gross Domestic Product 2011 (2013), Indonesia: Health Profile (2013), Publications Cambodia (2013), Water, Sanitation and Hygiene (2003).

4.1 Indonesia

1. Sanitation situation

Despite its economic remarkability, prospects for Indonesia′s MDGs achievement are far from hopeful. In order to meet its sanitation target, Indonesia needs to achieve 62.4% access rate in sanitation. While the number of households with access to improved sanitation facilities has doubled since 1993, Indonesia will not be able to meet its target by 2015 if the current trend continues (See Figure 2). In addition, even if the target is met, there will still be 116 million people in Indonesia without adequate sanitation. The situation in rural area is even worse as the access to improved sanitation facilities is half that of urban area (*Issue Briefs*, 2012). In terms of sewerage, less than 1% of population has access to it and even in areas where there are latrines, they are connected to septic tanks which are in poor condition and are not emptied regularly (*Urban Sanitation*, 2009).

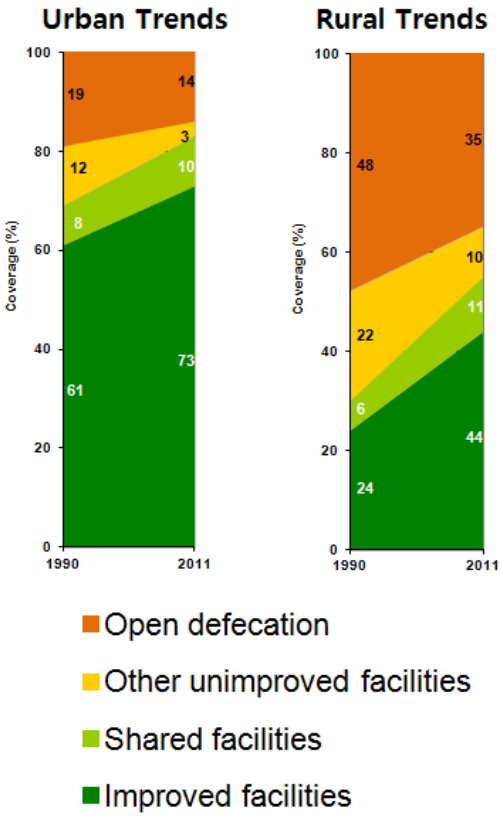


Figure 2. Sanitation Trend of Indonesia 1990-2011 (JMP for Water, 2013)

2. The Need to improve sanitation

In Indonesia, cost resulting from poor sanitation and hygiene was IDR 56 trillion (US$ 6.3 billion) per year which was 2.3% of its annual GDP in 2005. Health cost is the highest of the total economic loss (See Figure 3). There are 120 million disease cases and 50,000 premature deaths (*Economic Impacts*, 2008). Considering how better health can result in less child mortality, improved maternal health, and less diseases, better sanitation issues can help achieve the MDGs Goal 4, 5, and 6 and indirectly Goal 1.

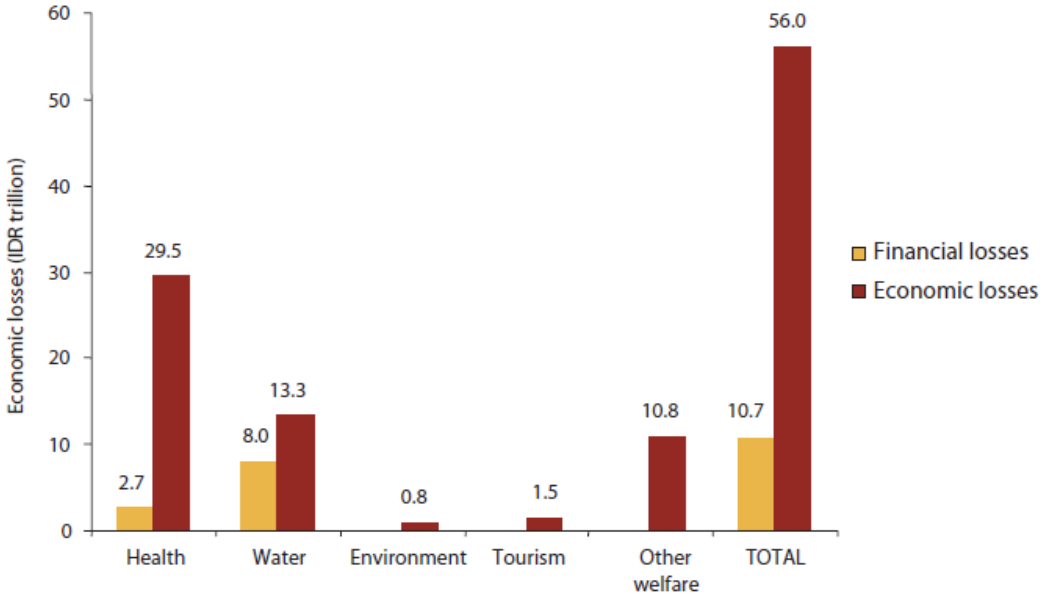


Figure 3. Economic and financial impacts of poor sanitation (IDR trillion),

(Economic Impacts of Sanitation in Indonesia, 2008)

3. Policy approaches to water sanitation in Indonesia

1) Institutions

In Indonesia, central government branches such as the National Development Planning Agency, the Ministry of Finance, the Ministry of Environment are in charge of sanitation issue (*Sanitation Country Profile*, 2004). The plan was that the central government would be in charge of infrastructure planning, development and finance. On the other hand, local governments had to look over operation and maintenance (*Urban Sanitation*, 2009). While the successful CLTS efforts have led to policy consensus in part of communities, inter-ministerial rivalries hindered the sanitation improvements from scaling up (*Scaling Up Rural Sanitation*, 2011). Local governments, on the other hand, suffered from low capacity with little or no experience, unclearly divided responsibilities, and weak community management structure (Issue Briefs, 2012).

2) Projects

In Indonesia, specific projects′ programmatic approach consists of three main

components: CLTS, Social Marketing of Sanitation and Strengthening the Enabling Environment (*Impact Evaluation*, 2013). While there are other projects such as the ones with the WSP and World Bank (WB), and WSP and the government, another problem is the lack of incentive for the experts to partake roles in rural sanitation issues. In addition, the lack of regular and reliable monitoring systems and records hamper the improvement of sanitation issues (*Scaling Up Rural Sanitation*, 2011), as in the case with many other developing countries. Fragmentation of roles and lack of incentive mechanisms to bring sanitation experts to the rural area are the main reasons why sanitation issue is lagging in Indonesia, adding up to the poor performance of MDG Goal 7, target C.

4.2 Cambodia

1. Sanitation Situation

Among the three countries, Cambodia has the highest percentage of open defecation in rural areas, which is 69% (See Figure 4). The MDG target of halving open defecation did not succeed as 84% was only reduced to 61% until 2011 (*Cambodia: estimates,* 2013). The disparity between urban and rural sanitation level is clear. As the population of Cambodia is concentrated in rural areas, it needs more consideration in sanitation improvement. 810 million people practice open defecation from rural sectors (*Cambodia: estimates*, 2013). 35% of rural households are below the official poverty line, which means that the households cannot afford to buy improved latrines. Even the households that are able to afford the latrines are not purchasing them. This is evident from the fact that more than half of the households without improved sanitation are non poor. (*Robinson* 2012). Furthermore, only 2% in rural areas had sewerage coverage in 2009 (*Cambodia: estimates,* 2013).

2. The Need to improve sanitation

Among the four economic losses, health cost is the highest (See Figure 5), which is mostly related to MDG goal 4, 5, and 6. Due to poor sanitation, over 10 million people have

suffered from diarrhea and six thousand people die annually (*Sanitation Initiative*, 2008). Overall, by reducing economic loss of all four sectors, MDG Goal 1 can be indirectly solved.

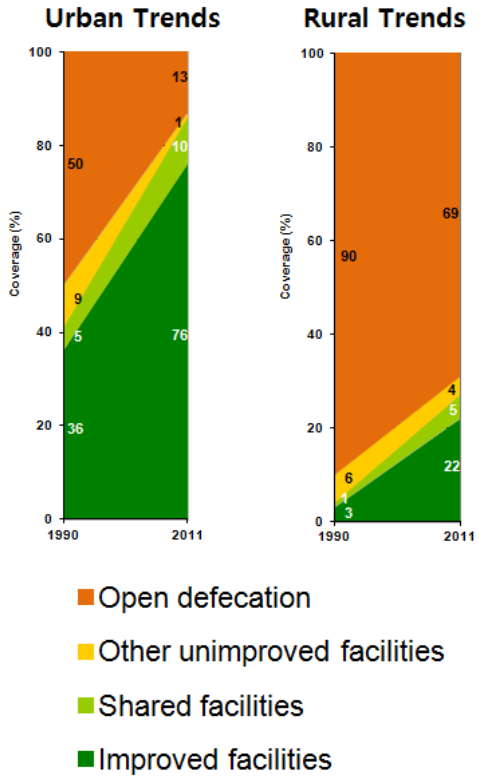


Figure 4. Sanitation Trend of Cambodia, 1990-2011 (JMP Report, 2012)

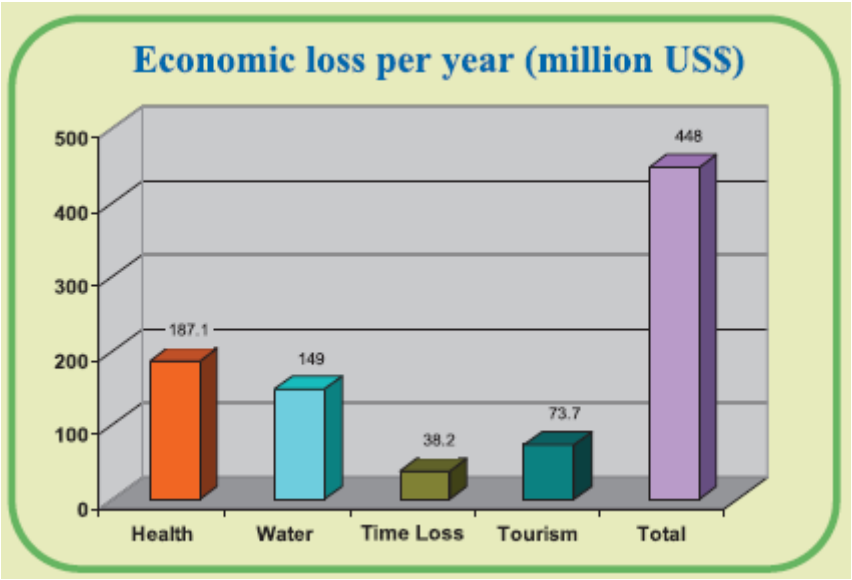


Figure 5. Economic loss per year (million US$)

(Economics of Sanitation Initiative, Cambodia, 2008)

3. Policy Approaches

1) Institutions

The major leader in rural sanitation is Ministry of Rural Development, which took initiative with other stakeholders, such as WB, WSP, and Asian Development Bank (*Robinson*, 2012). Furthermore, Ministry of Health, Ministry of Education, Youth, and Sport, and Ministry of Interior also cooperates with UNICEF (*Water, Sanitation*, 2012). D&D has been emphasized from the Royal Government of Cambodia (RGC), which especially focuses on Rural Water and Sanitation Sector (RWSS) and CLTS. However, there is need for administrative and institutional reforms throughout central, provincial, and local levels. Reforms should focus on attracting higher quality human resources to rural areas, increasing capacity to manage the needs on sanitation from national, NGO and private supplier level, and establishing check mechanisms (*Improving local*, 2007).

2) Projects

There were mainly four major projects to improve rural sanitation, ″ADB Tonle Sap Rural Water Supply and Sanitation Project″, ″Plan Cambodia Community Led Total Sanitation Program″, ″IDE sanitation marketing project″ and ″WTO-Lienaid Sanitation Marketing Project″ (*Sanitation Marketing*, 2012).These market driven projects succeeded by widely spreading cheap latrine to communities, but it faced obstacles to allure the majority of the population. Only early adopters were interested in the cost efficient latrines, and the suppliers moved village to village after there was no demand (*Robinson*, 2012). Educating people about the importance of sanitation was difficult to achieve and NGOs had hardships persuading people to prioritize latrine over other consumable items, such as television or refrigerator. Even though some communities did have demand for cheap latrine, suppliers were too far away and delivery could not be done. Overall, CTLS and sanitation marketing were not adequately linked, which led to lack of supply and demand contributing to the cyclical problem of rural sanitation.

As adequate latrines are not provided to the rural population, there are continuous problems of diarrhea from children and mothers. Also, open defecation deteriorated underground water, which is harmful to agriculture. Due to the ineffective management of budget in health and water treatment, it is difficult to reduce poverty in rural areas.

4.3 Lao PDR

1. Sanitation situation

Currently, over 3 million people are living without improved sanitation in Lao PDR and over 62% of rural dwellers have no sanitation facilities (See Figure 6). Most pit latrines do not properly isolate human excreta from percolation to groundwater or surface water, and treatment rates of sewerage are extremely low in rural areas(*Lao PDR: Briefing: Economic impact of Water and Sanitation*, 2012). Regarding the MDG sanitation, Lao PDR has shown consistent progress. It has reached 50% in 2010 for rural sanitation, and currently 3 percentage point increase is needed to meet the target between 2010 and 2015. Even if the target is met in Lao PDR, 50% of rural population would still remain without access to improved sanitation (*Lao PDR: Briefing: Economic impact of Water and Sanitation*, 2012).

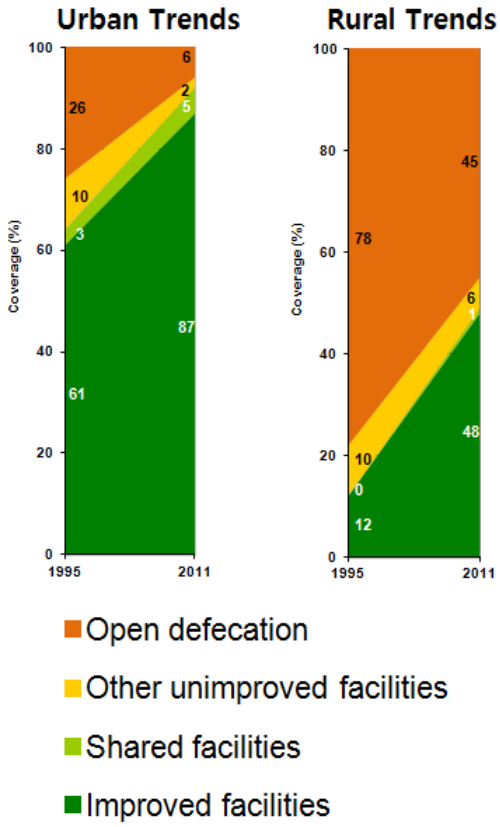


Figure 6. Sanitation trend of Lao PDR 1990-2011) (JMP Report, 2013)

2. The Need to improve sanitation

Economic loss from poor sanitation in Lao PDR costs LAK 1.9 trillion (US$193 million) which is 5.6% of GDP (*Economic impacts of Sanitation*, 2009). Among four areas in which the cost is measured, health cost is the highest and can be linked to the MDG goals of child mortality and combating diseases (See Figure 7). Diarrhea, which is the most common disease in Lao PDR is mostly attributed to poor sanitation and more than 1.2 million children under 5 face death every year due to the disease (*Water and Sanitation Program*, 2009).

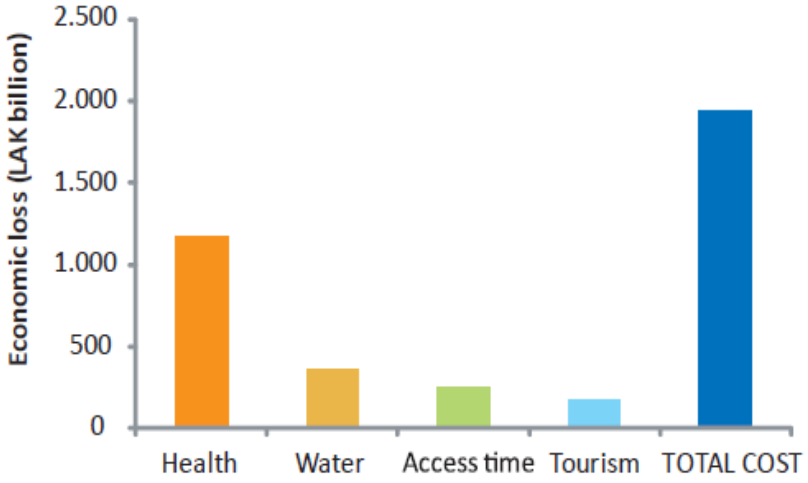


Figure 7. Economic Loss of Lao PDR (Water and Sanitation Program, 2009)

From a policy viewpoint, it is crucial to know if economic loss resulting from poor sanitation can be averted by implementing improved sanitation policies. The potential benefits estimated include saving latrine access time, averting health impacts, averting costs of accessing clean water for drinking, and averting tourist losses. Also, improved sanitation could provide intangible values of aesthetics outside the household, privacy, and convenience (*Water, sanitation, and hygiene interventions,* 2005).

3. Policy approaches of water sanitation in Lao PDR

1) Institutions

In Lao PDR, the Ministry of Health (MoH) and Ministry of Public Works and Transportation (MPWT) through its National Center for Environmental Health and Hygiene (Nam Saat) are responsible for rural water services. Nam Saat′s capacity for supervision and implementation of programs is considered low, and its effectiveness suffers from limited budgets. The RWSS(Rural Water and Sanitation Sector) strategy in Lao PDR has gone through a transition from top-down approaches to bottom-up, demand-driven methods. (*Water Supply and Sanitation*, 2010) Also, the current structure of both MPWT (Ministry of Public Works and Transportation) and MoH being responsible for overseeing general water facilities inhibits

efficient use of resources. Moreover, there has been a problem of sector coordination due to lack of international monitoring network that tracks government and development partners.

2) Projects

Nam Saat and JICA teams have started a pilot water supply and sanitation project in the north-west province of Lao PDR. They adopted the bottom-up approach with community participation and developed a ′show-case village′. As part of the program, the team used multimedia equipment to promote hygiene practices and raise awareness on importance of rural sanitation. Also, Nam Saat provided Information-Education-Communication Tools suitable for primary school students. However, Nam Saat lacked capacity to effectively promote sanitation programs due to its lack of financial and human resources. The local communities also lacked access to formal source of financing by private providers (*Sanitation & Hygiene promotion in Lao PDR*, 2000).

In Lao PDR, lack of resources in the main agency Nam Saat and lack of capacity of local communities have resulted in low achievement in MDG goal 7, target c. Those issues need to be solved to improve situation of child mortality, environment, and extreme poverty.

4.4 Summary

Overall, the chapter has examined how each country was trying to deal with the sanitation issue and their limitations were pointed out. In Indonesia, there is the discordance between the central and local government and also the lack of capacity and experience of local governments. Cambodia mainly focused on two aspects: first, D&D asked for the local government to become financially independent and second, CLTS was promoted along with sanitation marketing to increase demand and supply. For Lao PDR, lack of resources of Nam Saat and lack of capacity of local communities were identified as problems. Also, there is need for national monitoring system to collect sufficient data.

Chapter 5. Implications and Policy Suggestions

Based on the previous case studies, this chapter appraises the problems that exist similarly in all three countries. The presentation of relevant policies on how to tackle such problems will be a useful reference for other countries in order to develop their rural sanitation issues.

5.1 Implications

Regarding three cases, we have identified three common problems of policy approaches (See Table 3). First, at the government level, there is a fragmentation of responsibility between the central government and local governments. In the case of Indonesia, there have been successful CLTS efforts in the local level, but inter-ministerial disagreements in the central government led to inefficient reflection of such efforts. For Cambodia, local governments lack money and coordination to promote D&D and achieve better sanitation levels. As for Lao PDR, financial and human resources have not been allocated sufficiently to Nam Saat which is the main agency responsible for rural sanitation.

Second, local governments suffer from a lack of capacity to effectively implement CLTS. Lack of education and policy initiatives impeded the link between supply and demand of sanitation. In the case of Indonesia, there is lack of incentive system to bring experts and sanitarians into the rural region. In Cambodia, although sanitation marketing was widely promoted, local communities lacked access to suppliers due to faraway distance. In Lao PDR, local communities lack access to private suppliers, resulting in insufficient supply of sanitation facilities. As proper sanitation was not provided, additional health cost was incurred in numerous households, especially regarding children and maternal health.

Third, there is a shortage of sector data base and consistent monitoring networks, making it difficult to reflect past data and implementations. This could result in vicious cycle of past policies without further improvements or better coordination. In the case of Indonesia, it does not have a regular and reliable monitoring system on rural sanitation. Cambodia does have numerous pilot projects being implemented, but it still suffers from lack of national monitoring

framework. In the case of Lao PDR, local communities lack ability to collect accurate data, and the central government does not have centralized data management system or a national monitoring system.

Table 3.

Comparative Table of Implications in Tree Countries

Problem / Nation	Fragmentation of responsibility between central & local government	Lack of capacity of local governments	Lack of monitoring network
Indonesia	- Inter-ministerial rivalries within central government - Consensus in local community efforts not reflected properly	- Low capacity of local communities with little or no experience, unclearly divided responsibilities, and weak community management structure - Lack of capacity to bring sanitarians and experts	- No regular and reliable monitoring system - Lack of accurate sector data in local level
Cambodia	- Financial burden to local provinces due to Decentralization and Deconcentration (D&D): dividing Royal Government of Cambodia, provinces, and local communities	- Lack of prioritization of latrines - Limited access to suppliers as they are widely dispersed	- No national monitoring networks for result of pilot programs
Lao PDR	- MPWT and MoE responsible for sanitation in central government - Nam Saat, major sector agency, with insufficient financial/human resources	- Lack of access to private providers - Lack of hygiene promotion programs to change behavior	- Communities' lack of accurate sector data - Lack of centralized data management - Lack of national monitoring system

Note. Data adopted from case studies.

Overall, the three major implications indicated that MDG goals were interconnected, especially between Goal 4, 5, 6 and 7. Due to money being wasted in health issues such as disease being spread to children and mothers, it is becoming harder to solve continuous poverty issues, which is goal 1, eradication of poverty. Also, as environment has been polluted due to open defecation, rural development is being hindered, which also aggravated poverty indirectly. Table 3 shows the summary of policy implications with regard to the three countries.

5.2 Policy Suggestions

While the three major problems have been accessed from the case studies, this essay provides a series of policy suggestions. The implementation of the following policy suggestions will culminate in helping current progress and future development of the MDGs in developing countries.

First, as for the government-level problem of sector coordination between the central and local governments, a result-based incentive system run by the central government can help solve the problem. The failure to reflect the achievement of the local governments in the central government′s planning for sanitation and the inefficient allocation of resources by the central government result from the different government agencies being in charge of similar matters. In order to tackle such discrepancy, a sole agency should keep track of the progress of local governments and reward them. While the concept of incentive is not commonly accepted in national projects, Indonesia demonstrated a successful case in East Java. The Java Post Institute of Pro-Autonomy (JPIP) award was given to the best performing province within the East Java in terms of sanitation progress (*Scaling Up Rural Sanitation*, 2011). A further suggestion is to expand this program to the national level, to be controlled by the central government with cash incentives and community infrastructure development. Implementing such incentive mechanism will not only encourage the local communities, but also keep the sole government agency in charge of providing such incentives.

Next, as for the local-level problem related to the communities′ capacity-building, improved methods of linking supply and demand for sanitation should be widely shared. While many local governments lack the capacity to link demand to supply, the pilot project in Cambodia called the ′Easy Latrine′ proved the possibility of rural communities′ improvement. Local enterprises received sales training and increased demand which raised demand of the consumers for sanitation as well (*Sanitation Marketing Lessons*, 2012) In addition, local

governments can increase their capacity by establishing incentive policies for the sanitation experts to serve in the rural area and possibly train the local experts. Also, locals should take the initiative to contact private suppliers by advertising the sanitation business and attracting prospective investors. For example, portable children′s toilet can be one method to link CLTS and sanitation marketing to strengthen synergy effects. Educating children to use latrines is important to prevent open defection, which is a main goal for CLTS. Also, children′s toilet can facilitate sanitation marketing by increasing demand for household with children and supply for rural companies available to provide these services.

Last, the positive feedback system which leads the monitored record to customization of plans for specific areas should be stabilized. Not only Southeast Asian countries, but most developing countries suffer from a lack of proper review, monitoring, and reporting. However, because the current trend is to use periodic reviews for the basis of further planning of policies (*GLASS 2012 Report*, 2012), it would be recommendable to reverse the current vicious cycle to a ″virtuous″ cycle. Rather than abstractly suggesting that more data should be collected, this paper would like to propose that the survey questionnaire that lists the information should be prepared and distributed by the central government to the local governments to accumulate data. This would assist the rise of consistency and objectivity in collected information and ultimately create a ″virtuous″ cycle where outcomes of sanitation projects can transparently be accessed stably which leads to more effective planning for future projects. Proper monitoring of rural areas will show objective viewpoints of sanitation situation.

By pursuing the recommended policies, sanitation in rural areas will gradually improve over time. This will lead to decrease in child mortality, improvement of maternal health, and prevention of disease. Achieving MDG goals 4, 5, and 6 will directly reduce health costs, such as health care spending, productivity costs, and loss from premature death. Also, environmental costs, such as agricultural loss due to polluted farmland, will decrease as water pollution due to

sanitation will be alleviated. Indirectly, tourism loss will be reduced as improvement in sanitation leads to more tourists and days spent by tourists. Overall, by reducing the costs incurred by poor sanitation, poverty can be alleviated, which is MDG goal 1. Sanitation is one of the keys to success as it is interconnected to various MDG goals.

Chapter 6 Conclusion

This essay has discussed the importance of water under MDG framework, as a central part of achieving MDG goals including Goal 4, 5,and 7. In the global level, sanitation showed improvement but still many people lacked access to improved sanitation facility. Among many regions, Southeast Asia showed the most improvement and potential to provide sanitation policy implications, specifically in the rural region. In Southeast Asia, three case studies were discussed of Indonesia, Cambodia, and Lao PDR, countries with the most serious problems in rural sanitation.

Next, three common problems were identified among the cases studies. The first problem is discrepancy between the central government and the local government in implementing policies. To solve this problem, the paper suggested a result-based incentive system for communities with the best results in improving sanitation. The second problem was lack of linkage between CLTS and sanitation marketing. In order to solve this, local governments should increase capacity by taking policy initiative and designing incentive policy for sanitation experts. The last problem was lack of monitoring system that led to virtuous cycle of policy implementation. This paper suggested a positive feedback system based on direct and transparent monitoring network to solve the problem.

With recent recognition of sanitation as a separate goal in High-Level Panel report on Post-2015 MDG meeting, the principal role of water in achieving the MDGs is now receiving more attention. This reflects that sanitation issue has been escalated in agenda priority, and much more improvement is anticipated. Furthermore, political commitment from developing

countries would reinforce scaling-up the sanitation issue. By implementing the policy suggestions laid out in this paper, improvements in rural sanitation will take effect not only in Southeast Asia, but also in regions such as Middle East, South America, and Africa region. What will imperatively follow is a step closer to achieving the ultimate goal of the MDGs, providing basic sustenance for the impoverished population around the world.

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