Sanitation Research and Waste Management in Lao Nadi, Thailand 2013

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Abstract

As one of the first CIEE Public Health student groups to begin original research in the Lao Nadi slum community of Khon Kaen, Thailand, we hoped to create a foundation for future research in this community.

Our goal for the research component was to assess the overall cleanliness of the Lao Nadi community and to learn about sanitation methods in a railroad slum community in Northeast Thailand. For our review of existing literature on related topics, we analyzed sanitation in Northeast Thailand, sanitation in other countries within Southeast Asia, sanitation policy in Thailand, garbage disposal and waste management in Thailand, sanitation in Thai slum communities, past sanitation interventions, health effects of poor sanitation in Thailand, and environmental issues resulting from poor sanitation.

We assessed current water sanitation, waste management, food sanitation, and hygiene practices in Lao Nadi as well as evaluated environmental hazards. We did this through twenty-nine semi-structured interviews with community members, interviewing the village headman and assisting leaders, several village health volunteers and conducting a focus group with community members.

After our research we assessed that waste management was the most feasible sanitation problem we could address, and as waste capacity in the community was cited as an issue, we attempted to address waste management capacity in Lao Nadi to prevent trash burning and littering. Our intervention consisted of providing ten new trash bins to increase waste management capacity, painting the trash bins, a community trash pickup, a brief information session on health and sanitation, and a followup poster with health information and pictures of community members engaged in the intervention activities.
Introduction

When the World Health Organization (WHO) campaigned for Health for All in Thailand in 1970, WHO initiated projects to improve sanitation paying particular attention to water sanitation, food sanitation, environmental hazards, waste management, and personal hygiene (Graham 2009). In recent decades efforts have been made to increase awareness of the importance of sanitation in relation to the population’s health. An impoverished region, Northeast Thailand requires significant aid in addressing sanitation concerns, and thus guiding researching encouraged further exploration of this topic.

From research concerning the prominent sanitation issues in the Lao Nadi community by conducting semi-structured interviews and hosting a focus group, waste management was deemed the most troubling with a tangible solution. During the semi-structured interviews community members expressed their frustration for the small number of waste receptacles that cannot accommodate the amount of trash that the community produces. Every other day trash collectors from the municipality visit Lao Nadi and empty the twenty-seven waste bins lining the community’s main street. Despite the municipality’s seemingly frequent visits, the waste receptacles quickly fill, leaving the community members no choice other than to place their trash alongside the bins. Unfortunately, the municipality only collects the waste in the bins and leaves the additional trash lining the streets. To avoid littering the street, several households resort to incinerating their trash. Improper waste disposal including littering and trash burning contribute detrimental effects on the health of the community.

When community members incinerate their trash, dioxins and other pollutants are released into the atmosphere which may lead to an impaired immune system, defects in the endocrine and reproductive system, as well as birth defects, cancer, and respiratory illness.
Excess waste in a community negatively impacts the ground and surface water supplies. The waste can promote the growth of bacteria and algae because of increased concentrations of nitrates and phosphates in the water. Because the pumps that provide each household’s water lie merely inches beneath the soil, bacteria may easily seep into the frequently cracked pipes and spoil the water supply used to wash produce, to wash dishes, and to bathe. Accidentally consuming this contaminated water may result in diarrhea and gastrointestinal diseases, particularly among young children.

In order to decrease the amount of trash lining the street in Lao Nadi and to potentially decrease the frequency of trash incineration, ten waste receptacles were added to the community. While these trash bins will not be able to accommodate the entirety of the waste produced by the community, they will certainly help to keep trash off the streets. Before presenting the trash bins and before commencing the community wide trash pick-up, an education session offered several facts regarding the meaning and importance of proper waste management. Additionally, a few tips provided means of reducing the amount of waste produced and recycling items such as plastic water bottles. To engage all community members, the youth were invited to paint the trash bins through a community beautification project. By leaving the Lao Nadi community with methods of improving their waste management habits, decorated trash bins to serve as a constant reminder of the event, and a cleaner main road following the trash pick-up, Lao Nadi will have tangible materials to work with.

**Literature Review**

**Sanitation Policy in Thailand**

In Thailand, 93% of the population has access to improved sanitation facilities (World Bank, 2011). Success in effective policies have been linked to “Systematic inclusion of
sanitation program in National Economic and Social Development Plans,” “comprehensive vision - water supply, excreta disposal, refuse disposal – but step-by-step implementation,” and “continuous program improvement based on Metric and Evaluation system” (SDG Sanitation Donor Group, 2009). Water quality in Thailand is enacted by the Pollution Control Department that enacts appropriate legislation to deal with water pollution issues (Water Environment Partnership in Asia, 2003). According to the Ministry of Public Health in Thailand, over one million people every year are affected by unhygienic food and water, and new developments in food policy will focus on “hygienic and sanitary conditions throughout the food chain under the “From Farm to Table” concept. The food chain is involved with all steps, ranging from production to transportation, processing, and distribution to consumers” hoping to increase the number of restaurants with food safety standards by 5 percent every year (Government Public Relations Department, 2012). A National Municipal Solid Waste management plan was developed for the entire country in 1997, but problems persist including “lack of clear measures to promote waste reduction and public participation” and a “lack of law and regulation to cover entire system of solid waste management” (Sustainable Solid Waste Landfill Management in Asia, 2000). Thailand has passed large amounts of legislation in the sector of sanitation, and has made considerable progress compared to many of their neighboring Southeast Asian countries.

**Sanitation in other Southeast Asian Countries**

Three countries have been chosen as comparisons to Thailand and to provide a broader picture of sanitation in Southeast Asia: Vietnam, Cambodia, and Laos. In Vietnam 75% of the population have accessed to improved sanitation, in Cambodia it is 33%, and in Laos it is 62% (World Bank, 2012).
In Vietnam, “Solid waste is a growing problem for Vietnam. The country is producing more than 15 million tons of waste each year, and this volume is expected to grow rapidly over the next decade,” and while “waste collection in cities is improving” it “is limited in rural and poor areas. Urban areas collect an average of 71 percent of the waste,” “while in rural areas collection rates are typically less than 20 percent” (Czech Republic Development Cooperation, 2004). Currently, despite Vietnam’s rapid economic growth, “Water and sanitation related diseases remain a major health problem in Viet Nam” (UNICEF, 2013).

Decades of conflict in Cambodia have damaged water infrastructure and sanitation, only “35-40 percent of the country now gets its water from improved drinking water source” and “a lack of sanitation continues to present a major public health menace” including “preventable, waterborne diseases or mosquito-driven ailments spawned by the nation’s poor sanitation facilities” that contribute to about “ten percent of Cambodian children d[ying] before they are a year old” (National Academy of Sciences, 2008). The WHO has said that foodborne illnesses are still a major concern in the country, and “the mishandling of perishable food and unhygienic preparation, especially from restaurants, street food and hawkers, continue to cause frequent foodborne illness outbreaks in the country” (Bottemiller, 2009). Waste management in Cambodia is contracted to private companies and “service of waste collection is very limited,” with practically none in rural areas (Sethy, 2013).

In the Lao PDR, “lack of proper sanitation and water supply, malnutrition, poor health awareness and lack of good hygiene habits, all in the context of inadequate access to quality health care, promote the spread of communicable diseases” (World Health Organization, 2012). In addition, there is an “inadequate legal framework and unclear institutional responsibilities” regarding waste management in Laos, with less than 50% of municipal waste collected (Sisoulath, 2010).
Sanitation in Northeast Thailand

Considered the poorest region in the country, Northeast Thailand requires significant aid in improving the region’s sanitation efforts. With an economy based predominantly on agriculture, the communities often suffer from both an economic and health standpoint during the rainy season when the rising watershed results in soil erosion. The everchanging water supply during this period affects the water’s turbidity and increases the difficulty of water treatment. Khon Kaen Municipal Waterworks and the Ubolratana Dam work to treat and clarify the region’s water supply; however, the fluctuating turbidity results in unreliable water quality due to increased amounts of sludge (Sthiannopkao 2007). Contaminated water supplies have a detrimental effect on the health of the community. Water samples from natural reservoirs revealed a most probable number (MPN) index greater than 1609 and fecal coliform levels above WHO standards indicating the water’s contamination by feces or manure (Kaewkes 2012). Lack of proper sanitation facilities contribute to the prevalence of Opisthorchiasis, a type of liver fluke, and fecal contamination of water also increases the frequency of childhood diarrheal (Preuksaraj, 1984). “Poor food handling standards and increasing reliance on prepared foods put young children at a high risk of gastrointestinal illness. Poor feeding and personal hygiene in relation to weanling diarrhea was observed in another northeast district,” (Prohmmo 2006). Unsanitary practices have resulted in Salmonella contamination at market stands, which also results in gastrointestinal illness (Prohmmo 2006).

Garbage Disposal and Waste Management in Northeast Thailand

In Thailand, the compositions of waste are mainly organic waste, paper, plastic, glass, and metal. The disposed Municipal Solid Waste (MSW) impact is composed of: (i) the odor from landfills, (ii) the groundwater, surface water and soil contamination from leachate, (iii) spreading
of diseases by different vectors, (iv) uncontrolling of methane gas from anaerobic decomposition of MSW, (v) burning and explosion of landfill from methane gas (UNEP, 2013). The most common methods used for MSW in Thailand are sanitary landfill, composting, open dumping, incineration and others. There are only 97 disposal facilities that quite properly designed for serving about 480 local administrations throughout Thailand (UNEP, 2013). There is a lack of long-term master planning, and no cooperative planning among communities that might benefit from joint use of facilities, and disposal systems. Moreover, the increasing percentage of plastic and paper materials in the MSW stream will contribute to the growing MSW amount (Kaosol, 2009). Most of the cities in Thailand use non-compaction trucks for daily collection, with few cities using compaction trucks and hauling trucks. Municipal waste management practices in the ASEAN region include recycling/recovery, composting, incineration, land filling and open dumping (UNEP, 2013).

It is estimated the waste in Thailand increases by approximately 10% each year in rural regions (UNEP, 2013). Typically there is lack of organization in disposal options for rural waste therefore littering has become an increasing issue in these regions. Rural waste is categorized as being mostly food scraps which is fed to animals, and the remainder is composted or dried to use as fuel (Mungcharoen & Hoontrakul).

**Sanitation Interventions in Northeast Thailand**

An intervention was conducted in Northeast Thailand by the Department of Civil Engineering in Leeds University to study the levels of contamination in stored water and the effects the contamination had on the health of rural populations. The intervention’s goal was to improve hand washing particularly before and after eating and following bathroom use and to establish the habit of washing dishes immediately after use. Verbal messages were given to both
groups and one group received a plastic container with a tap to assist in these activities. The results show that the group who received the simple container saw significant improvement over the group that did not. At the end of the intervention, the researchers concluded that even the simplest sanitation technologies have a positive impact on health (Pinfold, 1990).

Residents Network for Re-Development of Slums, a local NGO composed of slum residents, has struggled with addressing the poor living conditions in the Khon Kaen region. In response to the request from Residents Network for Re-Development of Slums in Khon Kaen Province, the Government of Japan will provide funds for drainage and also for sausage production equipment etc. for improvement of living conditions and income generation activities. The Government of Japan is providing 5,991,700 baht under its Grant Assistance for Grassroots Human Security Project Scheme GGP for a project entitled The Project for Improvement of Living Conditions in Impoverished Communities. It is expected that the support will positively contribute to an improved situation and raise their income (Asia News Monitor, 2009).

Established in 1986, the Water Resources Development and Environmental Sanitation Project (WRD/ES) focus on rainwater storage (tanks and jars), environmental sanitation systems, greywater recycling and solid waste management for villages in Northeast Thailand. The WRD/ES project is supported by German Agro Action and the Ministry of Economic Cooperation of the Federal Republic of Germany (IRC, 2005).

Effects of Poor Sanitation in Thailand

Sanitation interventions in and of themselves are difficult to implement and make long lasting. Even though poor sanitation may lead to a variety of health problems, a custom or habit culturally embedded in a community (including sanitation, or lack thereof) may be difficult to
change. That being said, successful interventions can yield a significant cut in communicable diseases.

**Health Problems that Arise from Poor Sanitation.** *Water and Sanitation Related Diseases and the Environment* compiled by Janine M. H. Selendy and Jens Aardgaard-Hansen contains a vast sum of knowledge about the diseases caused by poor sanitation and preventative measures to limit them. The book focuses on water and sanitation-related diseases, including (but not limited to:)

Infectious Diarrhea- “a parasitic, bacterial, or viral gastrointestinal infection that disrupts the body’s absorption and secretion functions”

Malnutrition and Undernutrition- “can kill directly, as in famine, and also indirectly by increasing both the rate and severity of infectious diseases.”

Soil-transmitted Helminths (Worms)- Ascaris, Trichuris, and Hookworm: largely asymptomatic, though unnerving parasites exist in unsanitary soil, mainly in poor regions

Cyanobacteria- toxic algae that may lead to hepatocellular carcinomas

Dengue- a fever and rash inducing virus, mosquitoes being the primary vector. Because mosquitoes lay their eggs in still water, they spawn in bodies of drinking, bathing or washing water. (Selendy, 2011)

The book also notes an increase from 1% of rural Thailand’s population having basic sanitation in 1960 to 99.9% in 2005; yet despite monumental improvements, challenges still remain. (Selendy, 2011). The authors conclude their work by discussing Millennium Development Goals, and how to reduce child mortality; sanitation must be improved in low and middle-income countries. (Selendy, 2011)
**Hand Washing–Health Effects and Interventions.** An international study from the Cochrane Collaboration examined the effectiveness of multiple hand-washing interventions on the prevalence of diarrheal diseases. Diarrheal diseases, “transmitted by ingesting contaminated food or drink, by direct person-to-person contact, or from contaminated hands,” indirectly correlate with the quality of sanitation conditions (Critchley, Ejemot-Nwadiaro, Ehiri, Meremikwu, 2012). The disease accelerates malnutrition, and weakens the body’s immune system, making an individual more prone to outside infections (Critchley et. al, 2012). Successful interventions specifically focused on the importance of washing one’s hands after defecation and before mealtimes, as the pathogens are present in fecal matter (Critchley et. al, 2012). The study concluded that effective interventions reduced diarrhea episodes up to 32% in low and middle-income countries–results comparable to cleaning and purifying a water source (Critchley et. al, 2012).

**Health Problems from Burning Garbage.** Trash burning has a variety of negative health impacts. According to the New Hampshire Department of Environmental Services, “backyard burning” has poor combustion efficiency, and therefore releases many pollutants into the air (New Hampshire Department of Environmental Services, 2011). Burning trash and leaves, “releases high levels of particulates, acid gases, heavy metal vapors, carbon monoxide, dioxins, and other toxins, some of which are carcinogenic.” (NHDES, 2011) Dioxins in particular can cause a variety of cancers, and are commonly associated with a number of birth defects (NHDES, 2011). They can be present in the air around trash-burning soils, but also may make their way into the water supply, the soil, and hence the food supply (NHDES, 2011). Other chemicals given off in backyard burning include benzopyrene (a carcinogen that causes lung cancer), and hydrogen chloride gas and hydrochloric acids–chemicals given off from the burning of plastics–
can cause fluid buildups and ulcers in the lungs (NHDES, 2011). Particulates in the physical smoke remain in the lungs for years, and may cause asthma and other lung problems (NHDES, 2011). Apart from health hazards, trash burning poses environmental hazards; uncontrolled fires may burn down homes, or at least causes an unpleasant smoky odor.

**Health Problems from Pesticides.** A 2012 study in “Environmental Science and Policy” examined the health effects from a recent increase of pesticide use in Thailand. In the past decade, the kingdom experienced a nearly four-fold increase in pesticides (Panuwet, Siriwong, Prapamontol, Ryan, Fiedler, Robson, Barr, 2012). In 2000, the kingdom imported approximately 30,000 tons of pesticides; today the number is just shy of 120,000 tons (Panuwet et. al, 2012). A 2009 report from the Ministry of Public Health in Thailand surveyed the contamination of pesticides in fresh food samples from local markets; they found that 3.25% of the foodstuffs contained higher levels of contaminants than the administration recommends. (Panuwet et. al, 2012). Health problems from ingesting various pesticides may include nausea, numbness, pulmonary edemas, muscle weakness and spasms, respiratory problems and some forms of cancer (Panuwet et. al, 2012). Because of a general lack of knowledge amongst villages, instances of poisoning go unreported and are therefore difficult to measure (Panuwet et. al, 2012).

**Methods**

**Overall Approach**

Due to the fact that public health students had never conducted research in the Lao Nadi community, we took a community level approach and worked from the ground up to collect basic data necessary for understanding the overall quality of health as well as assess the level of health education among community members. In an attempt to get a well-rounded picture of the health related needs of the community, our research began with a broad approach that looked at
the five pillars of sanitation. To gage both the biggest sanitation concern as well as the needs of the community we conducted 29 semi structured interviews as well as a focus group containing members ages 18-65 to gain information directly from community members. Through analysis of data as well as using the system of priority setting we established that waste management was both desired by community and the most feasible topic to conduct research and an intervention project on.

After solidifying our focus we designed our intervention based off an overarching goal of sustainability. An extra ten trash bins were brought into Lao Nadi to decrease the overflow of waste in the community and an education session was conducted to explain the health issues that can arise from poor sanitation as well as taught members simple ways to decrease their trash output at home. This approach was taken to give members both the tangible and education tools needed to improve waste management and decrease gastrointestinal illnesses in Lao Nadi. Additionally we took a personal approach to the project by having the children design and paint the trash bins and by presenting the community with a poster containing pictures of participating community members and information from the event. This was done in the hopes of reminding the community members of the importance of working together to hold one another accountable for keeping Lao Nadi clean, thus ensuring the sustainability of our project.

Data Collection

In order to gain qualitative data in an efficient and effective manner we conducted twenty-nine semi-structured interviews. Community members ages 18 and above were interviewed on an available basis. The semi structured interviews focused on environmental hazards, waste management, personal hygiene and food and water sanitation as well as the prevalence of diarrhea, vomiting, gas, stomach pain and indigestion among those surveyed. This
was designed to find a correlation between sanitation practices and gastrointestinal health. Interviewees were also questioned on what they believed to be the main sanitation concern in their community and if they saw a link between their health status and their sanitation practices.

In the evening after interviewing villagers, a focus group was conducted to gain a more in depth description of the sanitation status and health concerns of Lao Nadi. We asked participants to elaborate on the information gained in the semi structured interviews and looked at each of the five pillars of sanitation to gage what the community was most interested in pursuing for an intervention project. Responses from participants were recorded by Koby and Katy and later analyzed to finalize the topic of our upcoming intervention.

**Sample Population**

For this study participants were drawn from the age range of 18 and above and had to be members of the Lao Nadi community. Our sample population for the semi structured interviews contained 29 participants, 23 of which were female and 6 of which male. This population was mostly drawn from adults with an average age of 52. Our focus group contained 11 people ranging from ages 18 to 65. The majority of the people in our focus group were closely tied, if not related, to the village headman, which may have led to a biased sample population. The intervention day had twenty two participants with many of them being women and children as there were only three men including the headman taking part in the trash pick up and painting activity.

**Analytic Techniques**

Our research began with an observational technique. While in the Lao Nadi community it was noted that there was an excess of trash littered along the road, as well as the distinct scent of trash incineration in the air. It was observed that there was an obvious shortage of trashcans due
to the fact that twenty-seven trashcans were counted for approximately 155 individuals living in Lao Nadi. Through our observations we designed sanitation questions for a semi structured interview as well as a focus group.

To assess the responses from the semi structured interviews and gain an understanding of the largest sanitation issue in the community we counted up how many people listed environmental hazards, waste disposal, personal hygiene, water sanitation or food sanitation as a main concern and then took note of what categories received the most responses. The same approach was used to distinguish what interviewees saw sanitation linked to their personal health in order to analyze the need for a sanitation education session. The prevalence of different gastrointestinal issues was also tallied in order to gage the health of community members and formulate a correlation between the presence of gastrointestinal issues and the level of sanitation education within the individual. These results were categorized into tables displayed in the data analysis section of this paper.

Following the focus group, we reviewed and discussed the concerns expressed by the participants and evaluated what they perceived to be the best way to engage the community in a future intervention. Many different sanitation topics were discussed during this session therefore we used the priority setting learned in a past lecture to establish what was most desired by community members and most feasible for us to do given our knowledge and resources.

**Ethics**

Before administering the survey, the translator explained who we were as researchers and what the study aimed to gain from their responses. The participants were fully informed of the nature of the study and were not obliged to participate if they did not wish to take part in the study. The individuals were also given the option to decline to answer any question that made
them uncomfortable. All the responses from the interviews were anonymous and the names of the participants were kept private.

**Plan For Evaluating Intervention**

In order to get an unbiased idea of the results of our intervention we included a discussion session between ourselves as well as the community members. To finish off the event and get the attention of participants we raffled off a gift basket and distributed the prize to the lucky winner. Over refreshments served in the community center, participants were asked what they thought of the event, their aspirations for the future and what they had taken away from the education session and activities. This debrief was kept very casual and was conducted as a social event in order to establish a comfortable and open environment. There was not a specific time allocated for the debrief, rather we concluded the event when community members had fully expressed their thoughts.

Immediately after leaving Lao Nadi a separate debrief was held between ourselves as well as our project facilitator KJ to discuss the challenges and successes of the intervention, if the goals of our project were met, and advice we would give to future CIEE students conducting research in the Lao Nadi community.

The combination of opinions from participants and facilitators, allowed us to gain a well-rounded perspective of the event and an all-encompassing evaluation of the intervention.

**Current Intervention**

The day of the intervention we arrived an hour early to set up and prepare for the days activities. After participants were settled we conducted a brief education session on proper waste management. Following the discussion the children painted the trash bins with students from the art faculty and the adults participated in a trash pick up. To wrap up the activities we presented
the prize to the winner of the raffle and held a group discussion on the community members’ thoughts about the event and plan for improving waste disposal in Lao Nadi in the future.

**Results**

**Results from Semi-Structured Interviews**

Interviewees:

<table>
<thead>
<tr>
<th>Number of Male Participants</th>
<th>Number of Female Participants</th>
<th>Average Age of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>23</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Max: 83</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Min: 27</td>
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</tbody>
</table>

Sanitation Problems

<table>
<thead>
<tr>
<th>Sanitation Problems</th>
<th>Water</th>
<th>Waste Management</th>
<th>Food Sanitation</th>
<th>Environment</th>
</tr>
</thead>
</table>

Personal Hygiene

No Concerns
Community members were first asked to describe their main concern regarding Lao Nadi’s sanitation practices. An overwhelming number of community members stated that there is not enough water to sustain the community. The second most prevalent sanitation concern in Lao Nadi according to the interviewed community members was waste management, particularly trash disposal. Nine community members discussed their frustration with the trash lined streets due to a lack of trash bins. Twenty-six of the twenty-nine interviewed community members stated that they bring their waste to one of the twenty-seven bins that line the main street of the community. As the municipality visits the community to collect the garbage once every other day, these scattered trash bins frequently overflow, and four of the interviewed community members admitted to incinerating their waste to avoid this problem. Other sanitation concerns expressed by the community members include personal hygiene and food sanitation. Three community members expressed no concern with Lao Nadi’s current sanitation methods.

To assess the personal hygiene routines as well as the level of hygiene education of community members, the semi-structured interviews contained a question asking when the individual washed their hands throughout the course of the day. In order to have the participant
come up with their own unbiased answers, this question was formatted as an open ended question. The idea was to see if the individual would say they wash their hands prior to using the bathroom, cooking, working or engaging in unsanitary activities so as to gage their knowledge of personal hygiene. Twenty six reported using soap to wash their hands however four of these people claimed to only use soap "on a need be basis".

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>Before Meals</th>
<th>After Meals</th>
<th>Before Cooking</th>
<th>After Work</th>
<th>After the Bathroom</th>
<th>After the Every thing</th>
<th>Handling Animals</th>
<th>Handling Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of People Who Wash Their Hands</td>
<td>18</td>
<td>16</td>
<td>6</td>
<td>11</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

The objective of the semistructured interview with the headman was to gain a more in depth understanding of the logistics behind the community's waste disposal methods as well as to get his perspective of what the most pressing sanitation issues the community faces. Like many
villagers, he claimed that water sanitation was the biggest issue in Lao Nadi. Although the community has recently obtained their lease from the government, there is still a limited supply of clean water and many have to buy bottled drinking water. In the future they expect to receive a budget and will be able to afford a clean water supply. However, Lao Nadi will face a new set of issues due to the upcoming railroad construction because the amount of land behind their houses will be decreased and members will not be able to use this area to place water tanks. The headman also expressed concern for a rise in environmental issues from the upcoming railroad construction as well as from the chicken factory located across the village's main road. He said that trash incineration as well as trash bins were used by villagers to dispose of trash. Every other day the government municipality comes in the late evening to pick up the trash bins located along the road as needed. In regards to possible intervention projects, the headman vocalized his support and listed water sanitation and the distribution of electricity as the most important issues in Lao Nadi.

During the interview with one of seven of the community’s Village Health Volunteers, who happens to be married to the headman, she stated the most significant sanitation issue as water cleanliness and accessibility. She was aware that health concerns arise from poor sanitation and was interested in learning and further educating the community members about personal sanitation practices. Although she does not treat gastrointestinal diseases in the community, she routinely visits each household one day per month to test water-containers for mosquitos. While the testimony from the community members demonstrated they did not draw connections between sanitation habits and frequency of vomiting and diarrhea, she informed us that villagers claim to understand personal hygiene.
We also aimed to gather information about food sanitation. Ten of twenty-nine villagers admitted to eating raw food, however some of these were a raw beef dish they consumed once or twice a year for special occasions. Almost all of the villagers claimed to wash fruits and vegetables before eating them. Twenty-six community members replied they washed their produce, two did not handle produce, and one did not purchase produce. Fourteen villagers reported that they wash dishes immediately after use, but fifteen reported that they left dishes out. Though we believe there is room for improvement in the realm of Food Sanitation in Lao Nadi, Waste Management and Personal Hygiene are more pressing issues.

Following the semi-structured interview, a focus group was conducted in order to gain feedback on potential intervention projects. Eleven adults of the community attended to further discuss the prevalent sanitation concerns as determined during the semi-structured interviews. Guiding questions further pressed for information regarding waste management and personal hygiene. Considering the feasibility of projects relating to waste management and water sanitation, we sought the community members’ opinions on several projects including establishing a compost for the community to sustainably dispose of food wastes, educating the community about the importance of handwashing, or introducing additional waste receptacles to distribute along the Lao Nadi’s main street. The participants expressed the most interest in receiving additional trash bins to increase accessibility of waste receptacles to accommodate for the waste the community produces.

**Research Shortcomings**

Our research in Lao Nadi might have been susceptible to biases, and there were a few shortcomings in our methods. While we were not doing a statistical analysis with quantitative
data, our sample collecting methods was not completely randomized, but this was for reasons of feasibility. Instead of choosing households designated through a random number generator, because Lao Nadi is one long street, we walked from one end of the community to the other end interviewing individuals who were available.

Certain individuals were busy managing stores or working, and declined to be part of the semi-structured interview process. Our interviewee sample consisted primarily of women, as theoretically the men could have been at work in other parts of the city as common professions in Lao Nadi include day laborers and tuk tuk drivers. This limited the responses in terms of an equitable gender breakdown, and if we had interviewed more men we could have theoretically had holistically different answers.

Part of our semi-structured interview was dropped after a few responses, a question regarding how people washed their dishes, after responses that seemed to indicate the question to be self explanatory, and we concluded it was not very relevant for our research collection. In addition, we left our handwashing question open ended, not wanting to directly ask people if they washed their hands at a particular time (after going to the bathroom for example), because with a direct question we expected there might be a response bias and people would just answer “yes.”

However, this might have unintentionally resulted in more response bias, as some people gave nonspecific answers, that they washed their hands at all times of the day, and some people did not give answers for every category, such as before/after meals, after using the bathroom, etc. In our focus group, it seemed that people knew handwashing was important, the far majority of people used soap when washing their hands, but they might have not known the specific
sanitation reasons behind why hand washing was important. For these possible response biases, our handwashing data collected poses problems in interpretation.

In addition, using a translator will always result in a translation loss of some kind, as long answers might have had to be summarized, and not all of the response translated, particularly in the focus group.

**Results from the December 1st, 2013 Intervention**

Originally slated to start at 1:30 p.m. we arrived at Lao Nadi and transported our materials to the community center by 1:00 p.m. We set up the refreshments, and set down the tarp to paint the trash bins on. At 1:30 p.m. there were only six people that had shown up to the community center, with some children and a few adults. After consulting with the translator, we decided to wait an additional 15 - 20 minutes before starting. When we began at 1:50, we had around 15 or 16 participants, but by the time we began the trash collecting and painting activity, we had 22 participants, 10 of them children.

We began our session by having everybody (including us) introduce themselves and say what he or she liked to eat to help break the ice. After that we offered a thanks to the community for all of the support we had been given from them, particularly the headman, and for welcoming us into their homes to do our research. We emphasized that waste management was a problem that came from our interviews and that waste capacity was a method of addressing this problem expressed from within the community.

After that, we gave a rundown of the intervention’s activities, and started a brief discussion of why sanitation was important for health in Lao Nadi. We got a few good responses from individual community members as why proper waste management was good for community health and overall the level of participation was very good in our intervention.
asking the headman and his wife to speak on the importance of our project, we moved into a brief 10-15 minute education session on the health impacts of improper waste sanitation, the health benefits of proper waste sanitation, and tips on how to reduce waste.

By this time masters students from the Faculty of Art had arrived to help conduct the trash bin painting activity, so after finishing the information session we broke into different groups, to go pick up trash and paint the trash bins. We also collected names to submit in our raffle for a 1,000 Baht gift basket containing as a prize. The art students from the faculty helped to mix the paints with paint thinner and to make new colors. Most of the trash bin painting participants were children, but there were between 5-10 children involved in the activity, which was good as we had wanted this particular aspect to target younger Lao Nadi residents.

We provided gloves, trash bags to the adults went out to pick up trash. There participants were mostly female; were only three men at our intervention including the headman. The painting and trash collecting activity continued for around an hour and fifteen minutes. Then we came back together, provided snacks and bottles of water, to discuss the activity and do a brief wrap up.

To get the community members’ attentions, we began with drawing a recipient for the raffle prize, and when that was over, moved into our debrief. The first question we asked was “What did you think of the cleanup today?” The answers for this question from the community was that they enjoyed the activity, especially because it was able to involve the children with their parents and the adults, bringing the community together.

Our next question were “How can we get more people involved?” which was not totally understood, as the answer was for us to come back and do this activity again. Rephrasing the question, we posed “How can you organize ourselves?”, and “What can you do to make this an
ongoing event?” Surprising to our group, we learned that community trash pickups do already occur, but when we followed up to ask the question of when, they occur only before holidays and special occasions.

We were given answers that this activity helped with understanding proper waste management and sanitation techniques, but for the rest of the community who didn’t attend, it might depend on the habits of individuals. The members of the debrief also expressed that they could go back and teach their kids and family about putting trash in the bin, and especially to use the new trash bins. The community expressed interest in a poster with information and pictures of the event which we were planning on providing to the community after the intervention.

**Objectives:**

In observing the sanitation practices of the Lao Nadi community, the data collectors hope to assess the overall cleanliness of the community and learn about current sanitation methods in a railroad slum community in Northeast Thailand. More specifically, any environmental hazards resulting from present approaches to water sanitation, food sanitation, and waste management will be measured. Researchers will take into account the cause and effect relationship between sanitation practices and the frequency of communicable diseases while surveying Lao Nadi community’s sanitation needs. By building relationships with community members and remaining sensitive and respectful of current practices, the researchers aspire to forge strong relationships and build a foundation for any future interventions in the community.

**Intervention Objectives and Plan:**

Having established that current waste management practices in Lao Nadi pose sanitation and health related risks; we established an intervention plan to deal with these issues. The two major issues that we found in the Lao Nadi community for waste disposal and sanitation relating
to health were that many residents of Lao Nadi burn their trash and that large quantities of trash are scattered on the ground. The waste management service from the municipality will not collect trash if it is on the ground, so these problems contribute to improper sanitation in Lao Nadi and increase the risk for communicable diseases from an unsanitary environment and air pollution.

Our goals for this intervention include:

1. To host a sustainable intervention focused on the importance of waste management that will leave a lasting impression on the Lao Nadi community members
2. To incorporate a clean-up day into Lao Nadi’s monthly community calendar
3. To improve waste management capacity in Lao Nadi
4. To decrease the need for trash incineration in the Lao Nadi community
5. To emphasize the importance of community involvement in maintaining a clean environment

The principal reason for Lao Nadi’s trash burning and littering is that their current 27 trash bins are not sufficient enough for the amount of waste generated by residents. In order to address the issue at the heart of these two unsanitary practices, we hope to increase waste management capacity by increasing the number of trash bins in the Lao Nadi community. Before the intervention, we will return to the community and inform residents of our plans to provide more trash bins as well as lead a community clean up.

On the day of the intervention, we will distribute the new trash bins roughly geographically equally to get the furthest increased access for community members. After that, we will reconvene at the community center to start a community cleanup effort, providing gloves and trash bags. This will go on for about an hour, after which we will have a break for refreshments.
This will be followed by a brief, 30-minute presentation on the health effects of poor waste management including respiratory damage from burning trash, and the effects of pollution on an increased risk of communicable diseases and infections. Also we will include the positive benefits of proper waste management, including reductions of air pollution, risks of communicable diseases from unsanitary litter, the benefits of exercise from trash collection, and the aesthetic benefits of having a clean and well-kept community. In addition, we will include steps the community can do to reduce waste, improve the sanitary conditions of the trash bins such as using plastic bags to contain waste, and try and incorporate a cleanup day as a recurring event once a month in the community calendar.

We will also include paint in our budget so that community members can paint their garbage bins as part of a community beautification project. The CIEE staff informed us that the Faculty of Fine Arts at Khon Kaen University is involved in community beautification projects, doing murals and paintings on garbage bins and other waste receptacles like dumpsters. If possible, and contact can be made with the beautification project at the faculty, we would like to incorporate the Art Faculty in this part of our intervention. After the intervention, we are planning on creating a post-intervention follow-up poster. This will be ideally hung in the community center that is still under construction. The poster would include a summary of the important health information about sanitary waste management and the importance of keeping the community clean, reducing trash burning, etc. in Thai. It will also include pictures of the community members involved in the community cleanup process.

This intervention will be planned with the utmost consideration to future sustainability kept in mind, due to the fact we will be giving the community physical tools that residents can benefit from through sustained use after the intervention day is over. The trash bins will have continued
use as tools to increase waste management capacity in Lao Nadi. The implementation of a monthly village cleanup will keep proper sanitation in the community important, relevant, and a continued process. It will depend on the motivation of the community members, but we expect with a strong village headman and a close-knit community that a cleanup day incorporated into the community calendar will be successful.

**Timeline**

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<th>Date/Task</th>
<th>Scouting Trip to Lao Nadi</th>
<th>Group trip to Lao Nadi (Semi Structured Interviews and Focus Group)</th>
<th>Researched the Five Pillars of Sanitation</th>
<th>Research Proposal</th>
<th>Conducted Semi-Structured Interviews, Focus Group in Lao Nadi</th>
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Discussion

The Whole Process

Our group started off the research process unsure of what the greatest need in Lao Nadi would be, in terms of sanitation. Upon brainstorming, we determined the best way to assess the situation would be to conduct broad research, then narrow it down to a single topic. We concluded that proper sanitation rests five pillars: water sanitation, food sanitation, waste management, personal hygiene, and environmental sanitation—such as pollution and pesticide use. From a conducting research in the form of a literature review in these pillars, we conducted a series of questions to be used in a semi-structured interview (See Appendix). After a number of semi-structured interviews and qualitatively analyzing the results, we conducted focus group with ten diverse villagers. It was in the focus group where we determined that an intervention in waste management—though it was not the most requested or most needed (water sanitation was an issue, but we believed that this would be resolved with the community newly becoming recognized)—would be both impactful and feasible. Also, here several villagers expressed interest the idea for purchasing more waste receptacles for the community would be part of the intervention.

As a group, we informally confirmed our choice to intervene by way of the waste management pillar. One group member had indicated that personal hygiene was also a needed intervention, however the team voted that waste management was more feasible and more likely to be successful. Further research was conducted to determine the health effects of poor waste management and burning trash. We concluded that our intervention should consist of a trash pickup, an education session on proper waste management, and purchasing new waste receptacles for Lao Nadi. We felt, however, this project lacked timelessness and creativity. One
group member suggested painting trash bins could to create a sense of community, beautifying the village, and making waste management a personal issue. Also, by getting the youth involved, this would ideally make proper waste disposal an issue of importance for all ages. When we presented our ideas in our research proposal, we were told that we could contact Ajaan Joof and Masters students at the Faculty of Fine Arts at Khon Kaen University. Having regularly made projects out of painting murals in villages surrounding Khon Kaen, they could assist us with the logistics of the painting process. They proved to be instrumental to the success of our project on many levels.

When we our budget approved, we hired a songtao to drive us to Big C, where we bought a majority of our supplies: the bins, presents for the headman, refreshments, and trash bags. To maximize efficiency, we transported these directly to Lao Nadi, which was nearby, and spent the rest of the day personally promoting our intervention. After purchasing last minute supplies—paints, cups, tarps, and thinner—we were ready to work with the villagers on sanitation and its health effects.

Our intervention went smoothly. The members of the Lao Nadi community were attentive during lessons, eager during the trash pickup, enthusiastic while painting the receptacles, and happy to discuss the importance of maintaining a clean environment. The debrief and a quick discussion with the headman after hinted that the intervention was well received and sustainable.

**Discussion of Results**

We believe our intervention was very successful, for the most part. We set five goals: host a sustainable and impactful intervention, incorporate a community clean-up day into the monthly calendar, improve waste management capacity, decrease the need for trash incineration, and emphasize community involvement in waste sanitation. Though it is difficult to assess to
what extent we have accomplished them (as some are long term), we feel our intervention provided the opportunity to the members of Lao Nadi to encourage a clean community in the future.

One of our main focuses of this intervention was sustainability—we want healthy waste management practices to be remembered in the community for months and years to come. While it is impossible to guarantee that our intervention will be remembered down the line, we feel we have provided many of the tools necessary to make a lasting impact. We gave the community tangible resources—the poster and the receptacles themselves—to remind them of the importance of waste management and health effects of improper practices; the poster constantly informs the villagers of facts and give them tips, while the bins serve as symbols of community togetherness, creativity, and a figurative reminder of the day’s lesson and discussion.

Our debrief with the community members yielded some interesting results:

● the intervention was well received, particularly with the emphasis on youth

● the best way to get more of the community involved was to have outsiders (namely farang) come into the community as external motivators

● the community cleans up “regularly” before holidays, and didn’t seem too interested in implementing a cleanup day into their monthly calendar

● many villagers said they would relay information they learned to family that hadn’t been present at the intervention

● the community were indeed interested in receiving a poster with the facts and photos from the day

Although we feel we have as much as we can to accomplish our goals, the villagers themselves will determine how sustainable our project really is. We will not be around in months and years
to come to implement a regular pickup; hopefully the poster and receptacles will provide enough internal motivation to come together as a community and enforce proper waste management. It is important to take into account that old habits die hard: it is difficult to go into a community and ask them to change their ways, even though it is harmful to burn trash, and littering is objectively bad. The success of our project will be determined by the villagers themselves in the months and years to come.

**Anticipated outcomes vs. Actual outcomes**

Our intervention went fairly smoothly and according to plan. Having lived in Thailand for nearly four months, we have become accustomed to the polychromic culture. We, therefore, chose to implement a flexible intervention schedule as opposed to a strict one. Had we adhered to a set schedule, many community members would have missed a large portion of the lesson. Although we did not formally anticipate a head count, we purchased the perfect amount of snack supplies.

We anticipated a possible lack of attendance, although we took many precautions to bring our project to the attention to the community members: going door to door a few days before, providing incentives such as the raffle, having announcements made over the community loudspeaker. We had relationships with many of the attendees, either because we ran into them while promoting, or we had a home stay with them earlier in the semester. Our promoting and incentivizing yielded a good turnout. We also anticipated it would be difficult to have a sustainable intervention, due to the fact that we are outsiders and foreigners coming into their community and attempting to change a practice of theirs. For this, we constantly emphasized that this was an internal community effort: the idea for this intervention was inspired by the focus group, the pickup and painting was done almost entirely by the villagers themselves, and the
pictures depicted on the poster show mostly the Lao Nadi community members, not us. Again, the success of our intervention is determined by its sustainability, which largely rests on the villagers themselves.

**Problems and Actual Outcomes.** There were two main unexpected outcomes. The first of which was largely beyond our control; Political turmoil is abundant in Thailand at the moment, and many of Lao Nadi’s community members had journeyed to Bangkok to protest. This may have cut our participants by a significant number. The second of which was revealed to us in a discussion with the headman after the intervention. Members from surrounding villages have a history of scavenging recyclables from Lao Nadi’s waste, and they may be the source of some of the litter. Also, we were informed that because the newly decorated receptacles were so visually stunning, they might be stolen. These problems may have been discovered if we had returned the community after deciding to do an intervention on the pillar of waste management to gather more information. However we are optimistic that Lao Nadi will have less litter because of our work with them, and that they will be able to keep their trash cans.

**Conclusion**

**Summary of Findings**

Based upon qualitative results gathered from the semi-structured interviews and the focus group, the introduction of additional waste bins to the community with a brief education session and an organized community cleanup seemed the most feasible. Approximately twenty-five community members of varying ages attended the information session during which basic facts and tips to decrease a household’s amount of waste were provided. The village headman and another community member spoke on the importance of proper waste management and the significance of the day’s event. Though the community members seemed to respect the
information we provided, hearing their own headman and another representative emphasize cleanliness validated our efforts.

Following the brief education session, we encouraged the community members to participate in a trash pick up along Lao Nadi’s main road or in the beautification project led by the student volunteers from the Faculty of Art at Khon Kaen University. The adults slipped on gloves and grabbed a plastic trash bag before taking to the street to collect the litter while the children, excited to decorate the trash bins, huddled around the art students and armed themselves with paint brushes. For an hour and a half the community’s youth enjoyed personalizing the black plastic bins and the adults worked to improve the cleanliness of the community.

The community regrouped and as the participants enjoyed the provided refreshments, they reflected on the afternoon’s events. Well-received by the community, the participants expressed their gratitude for the new trash bins and commented on slightly cleaner road. However, they seemed hesitant about routinely organizing community cleanups despite the importance of a clean environment and their pleasure in the prospect of having a cleaner community. To this, the headman argued that if foreigners impressively perceive Lao Nadi’s sanitation practices as significant, the community members should also hold themselves to higher standards when disposing waste.

**Strengths and Limitations**

The wide variety of activities including the brief education session, the creative trash bin painting project, and the trash pick up catered to a diverse group of participants. Though the community’s youth preferred to channel their artistic talents by engaging with the Faculty of Art volunteers and painting the trash bins and the adults gravitated to the street clean up, the day’s
events seemed attractive to children and adults alike. Regardless of the activity the individual chose to engage in he or she contributed to the overall initiative to improve the cleanliness of Lao Nadi. The children who painted the trash bins personalized the community’s newest waste receptacles that will serve as a constant reminder of the intervention and the importance of practicing proper sanitation methods. Those who chose to gather the litter lining the main street appreciated the community’s effort to clean up and gained a little perspective of the potential cleanliness of Lao Nadi if the community prioritized the community members’ health, community’s sanitation, and community’s appearance. Because the community members specifically requested more trash bins to accommodate more of the waste the community produces, the community members expressed excitement and gratitude, representing another strength of this intervention project, as community members would be more inclined to participate in a project they suggested.

However several limitations exist that influenced the reality of the intervention’s impact. For instance, waste disposal represents a crucial sanitation concern of Lao Nadi, and community members of all ages should have participated in the street clean up to gain a better perspective of the sheer amount of trash lining the road and to possibly gain more incentive to properly dispose of waste after observing the improved appearance of the community following the pick-up. Also, because the pick-up lasted just under an hour, community members could only cover a small area of the community. The community members will now have to motivate themselves to pick up the remaining litter lining the streets. Although the education session offered information concerning the significance of proper waste management, the brief meeting just touched on basic facts and did not delve into specifics. The community members now have this information, but in order to
observe a difference in the cleanliness of Lao Nadi, the people’s habits must be changed which poses a challenge.

**Recommendations for Future Interventions**

As the community members of Lao Nadi currently receive an unreliable and poor quality supply of water, the community members rely upon bottled water. The community does not have a recycling program or a sustainable method of disposing the empty plastic bottles, so most of these bottles are thrown away. The community members would benefit from an established system of recycling these bottles, which would in turn decrease the amount of waste destined for the trash bins. During the focus group, participants also explicitly asked for help in organizing a recycling program for Lao Nadi.

Personal hygiene, though not acknowledged by the community members, appeared as a high health consideration for Lao Nadi. Many of the community members did not seem to frequently wash their hands throughout the course of the day, which may contribute to an increased frequency of communicable disease. A limited number of questions on the semi-structured interview targeted personal hygiene, but the received responses and the eagerness of the focus group participants to learn more may indicate a gap in the community’s knowledge and the possibility of a future intervention.

**Future Considerations/Directions for Research**

After having introduced additional trash bins into the community, it will be necessary to follow-up on the waste disposal habits of the community members. If households continue to incinerate their trash perhaps a greater emphasis can be placed on researching exactly why this detrimental habit has continued. Moreover, further alternatives to incinerating this waste. If the community has not implemented a community wide trash pick up event into the monthly
calendar, other ways to promote proper waste management in the community can be determined by scheduling student facilitated trash pick ups until the community members develop the habit maintaining a clean community.
Appendix

Original Proposal

Semi-Structured Interview

● What are the most significant sanitation issues in your community?

● When do you wash your hands over the course of the day?

● Do you use soap when you wash your hands? Type of soap?

● Do you clean your produce before cooking?

● Do you consume raw or undercooked food?

● Do you clean your dishes immediately after you eat?

● How do you wash your dishes?

● How do you dispose of your trash?

● Do you believe that the proximity of the railroad negatively impacts the cleanliness of Lao Nadi?

● In the past month have you suffered from any of the following?
  - stomach pain
  - vomiting
  - diarrhea
  - gas

● Do you believe that any illness you have suffered from in the past month is a direct cause of Lao Nadi’s sanitation practices?

Focus Group
Introduction:

We are studying public health at KKU and are investigating the current sanitation methods in this community. Today we surveyed several community members about personal hygiene, food sanitation, water sanitation, and waste management. We heard you express your concerns about water sanitation and we hope to further discuss this issue with you. We would also like to discuss any other sanitation concerns with you. Ultimately, we hope to assist you in improving Lao Nadi’s cleanliness whether it be waste management or water sanitation.

Questions:

- What sanitation changes would you like to see in your community?
- Would you be interested in a community wide pick-up and then incorporating this day into your monthly community calendar?
- We noticed that there are trashcans and bins lining the streets. Why do you think there is so much trash lying around with so many bins around?
- Would shorter, wider, and more trash cans benefit the community?
- If you had easier access to trash bins, do you think you would be less inclined to burn your trash?
- Do you know about composting? Do you know about it’s benefits?
- Are you satisfied with trash disposal in the community and the community’s waste management?
- Would the municipality be able to accommodate more trash bins?
- Does the municipality pick up trash at a set time, or does it come sporadically?
- What do you know about personal hygiene?
● Why do you think that washing your hands is important?

● Do you feel that you have been properly educated in proper hygiene? Would you be interested in learning more about this topic?

● Are you Aware that not washing your hands, particularly after going to the bathroom can make you very sick?

● Despite these consequences do you continue to not wash your hands?

● Do you see any correlation between your health status and Lao Nadi’s cleanliness and your own personal hygiene?

● Based on current routines and habits where do you see the health of Lao Nadi in the coming years? Do you see more problems arising regarding health and sanitation or do you see for see major improvements?

● What do you do to help keep the community clean?

● What would bring the community together?

● What do you think could be done to make the community more sustainable and be able to grow as much as you’d like it to?

● How will recognition of the municipality change Lao Nadi in the coming weeks?

● What day of the week would be most suitable for an intervention?

● What time of day is best?

● On the topic of waste and trash disposal what kind of project would you most want to see?

● What happens to empty bottles of water?

● Would they also like to see a community wide clean up or most garbage cans?

Intervention Day:
Katy:

Hi Everyone! Good Afternoon! We want to thank you very much for coming to this afternoon’s event. We have been working closely with the Faculty of Public Health and the Faculty of Art at Khon Kaen University to plan this community event. Based upon our research in Lao Nadi and after speaking with many of you over the past few weeks, we have found that waste disposal and sanitation are very important issues for community members. For our student projects, waste management was said to be a good idea. Thank you for allowing into your homes and speaking with us.

Justin:

Many people have mentioned that there is not enough waste management capacity with the current trash bins. We were told that the tree leaves that fall take up a lot of room in the trash bins. In addition, because of the community’s trash, there is often not enough room in the trash bins. Because of this we were told that community members would leave trash on the ground or burn trash when there isn’t room.

Koby:

In order to improve trash capacity, we have purchased ten new trashcans for the community. We will distribute these throughout the community to hopefully make more room for the community trash so there will be less litter and trash burning.

Sarah:

First we will have an education session about how sanitation in the community affects health. Then we will have a trash-pickup and trash bin painting activity that will last for about an hour. After that we will have snacks and do a raffle for a prize!
Why do you think it is important to maintain a clean community? - To the Huge Crowd

Facts about Sanitation Litter and Burning Trash

Sarah:
-Litter makes Lao Nadi less beautiful

Koby:
-Living in a polluted environment can impact mental health and happiness

Katy:
-Uncontained garbage contains lots of bacteria that can make you sick. Your kids and pets may Play in it, and develop a variety of infections. Children especially are at risk for diarrheal diseases if they do not properly wash their hands

Justin:
-When it rains on litter, chemicals may seep into the water supply. This means you can get sick from ab-namming!

Sarah:
-Burning trash releases many pollutants into the air. They may cause cancers, birth defects, asthma, and a variety of other health problems

Koby:
-Trash burning may put the community in danger of fires, and it creates an unpleasant odor

Katy:
-Leaves can be composted to make more nutritious gardens

Justin:
-Bottles, cans, and glass may be recycled for money
Sarah:

-Picking up trash is wonderful exercise

Koby:

-A monthly community trash pickup can bring the community together!

**And here are some tips to help reduce waste!**

Katy:

- Recycling plastic bottles, glass bottles, and paper will reduce waste in the garbage bins

Sarah:

- By placing your waste in a plastic bag before bringing it to the trash bins, the waste bins will be kept clean and your trash will be more compact

Koby:

- Some things are much better to burn than others. Burning leaves are less harmful because they are natural, but burning plastic and metals can be harmful for health.

Justin:

-Bring your own bags to the market to reduce the amount of plastic bags that could potentially litter the streets. Don’t take plastic bags, spoons, or forks from stores for your purchases if you don’t need them

Katy:

-And wearing gloves when you sort through or pick up trash may prevent bacteria from getting on

Koby

We now invite the Headman and his wife to speak about the significance of today’s event and the importance of maintaining a clean community.
(Headman Speaks)

(Headman’s Wife Speaks)

Katy

Thank you so much! We are going to open up this discussion, and we encourage anyone to share why they believe it is important to actively clean the community.

Justin:

For today’s event we will be dividing into two groups to pick up any litter lining the street. One group will turn left and the other group will turn right out of this community center. We will be providing gloves and trash bags to collect the waste.

Sarah:

Additionally, students from the Faculty of Art will be leading a project to paint the trash bins that we have presented you. We encourage you to contribute to this project and to be as creative as you would like. The trash bin painting will be occurring here in the community center.

Koby:

For those of you who have participated we are holding a raffle that will be drawn at the end of the event. We will be passing around pieces of paper that we ask you write your name on for the raffle drawing. In an hour and a half (state time too) we will reconvene here for refreshments and an informal discussion about today’s event.

All:

Have Fun!

Trash Pick-up:

AND

Beautification Project: (90 min)
Debrief With Refreshments

Koby:

We hope you all enjoyed our event today! A big thank you to all of you who helped clean with us today, Lao Nadi looks great and we hope that this will be an event that you all can continue to have in the future. Please help yourself to refreshments and have a seat; we’ll now present the winner of the gift basket!

Katy + Sarah

Draw the winner for the raffle

Debrief Questions

1. What did you think of the community wide clean up today? (Koby)
2. In the future, what do you think would be a good way to get more people involved? (Justin)
3. Do you feel that the lesson on health and sanitation gave a solid picture of the importance of keeping your community clean? (Sarah)
4. Is this something you would like to incorporate into the community calendar and continue in the future? (Katy)

Justin

Again thank you all for working with us today. We’ve really enjoyed all our time in Lao Nadi and are so grateful for your hospitality. I know each of us consider Lao Nadi to be a part of our family and have cherished each visit spent in your community.

Budget

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References


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http://www.who.int/countryfocus/cooperation_strategy/ccsbrief_lao_en.pdf