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### **Philippines: Sanitation Restoration for Filipinos Through Remedial and Informative Measures**

“About 7 million Filipinos in 2015 have resorted to open defecation—85% of which are from rural areas without toilet facilities. This poses a threat to the safety of food and quality of drinking water” (WHO, 2016). This figure illustrates even with a valuable abundance of life and resources, the Philippines is paradoxically afflicted with complications and barriers to fully access and sustainably use available natural resources. The lives of Filipinos are thus categorized by an adversity that is persistent throughout the world even with recent progressive developments. “Despite being one of the fastest growing economies in Southeast Asia in recent years, declines in poverty were modest, leaving marginalized groups such as women, children and the elderly vulnerable to hunger and poverty. This rapid economic growth, however, does not necessarily translate to better conditions when combined with other factors such as nutrition and food security” (WFP, 2016). An intensive look into the Philippines uncovers significant underlying issues afflicting the country and ultimately its food security. Of those issues, the most encompassing is the lack of access to clean water and proper sanitation, which debilitates a population’s ability to survive, actively work, and produce food. In an attempt to address this issue, strict government enforcement of standards, non-governmental intervention with affordable technology or means of sanitation, and education is necessary for improving the lives Filipinos.

With an ever-growing population, the Philippines ranks among the most populated countries of the world. Typically, Filipino families average from as low as 4 to 5.2 persons per household. However, in households that are less educated or less affluent, there is a tendency for the household to bear more children (PCW, 2014). A majority, if not all, of these households, has limited access to basic requirements such as nutritional diets, potable water, health care, or education. Despite this, the education sector has shown improvement as seen in the school year of 2010-2011 with completion rates for secondary education at 80.27% for girls and 69.88% for boys (PCW, 2014). Even though many of these basic requirements have improved, the lack of access to resources is still prevalent. An example of this includes the access to an adequate diet, which can be near impossible for many deprived Filipinos who must rely on a monotonous diet of rice, dried fish, and, if they can afford, vegetables or other means of protein.

Further investigation shows that rural households and urban households, though vastly different, experience some of the same underlying adversities. As explained by a local Filipino news channel:

Rural farmers, who bring in an average of 23,000 Filipino pesos per year, typically rely on rice crops, but rice crops are not financially stable alone and require relatively high levels of water collected daily from underground sources. Thus, other crops like lemongrass or corn are planted in order to bring in money quickly. A harsh reality behind all the hard work put into hand-tilling and fertilizing the land is that most of these farmers do not own the land. Many of the rural farmers are averaging at 57 years of age, despite most of the population being young adults (ABS-CBN New Channel, 2015).

A clear divide in the Filipino workforce is indicated by the rural areas where an aging population struggles to survive. Correspondingly, poor urban areas with a primarily younger workforce also face a set of struggles. In most urban areas in spite of having the accessibility to diverse, safe food or connect to a water management system, many Filipinos cannot afford to do so. Inevitably, due to the hardships faced by the urban and rural populations both resort to obtaining food and water from unreliable and possibly contaminated sources. Not forgetting the unsanitary hygiene practices of each population, like open

defecation due to a lack of access to community assets in the area. When looking at the population of the Philippines, it is apparent that there is an overwhelming poverty induced strain that inhibits their lives significantly. This lack of adequate distribution of resources and sanitation has connections to decreases in productivity, income, and education.

Due to the health complications elicited by contaminated food and water, the Filipino people cannot physically or economically sustain themselves. The goal of the matter then becomes about eliminating those health complications. According to the CIA World Factbook, the Philippines' major food or waterborne diseases include bacterial diarrhea, hepatitis A, and typhoid fever (CIA, 2017). It comes to no surprise, that without treatment, a large majority of Filipinos, particularly children, die annually leaving behind small workforces to bring in income or produce food. These highly contractible diseases can easily be eliminated by consuming safe food and water. However, to do so necessitates access to safe food, clean water, and hygiene, all of which require sanitary methods of management. The implementation of sanitary management methods will not only alleviate the health complications but lead to the complete proper management of resources thus undertaking the larger issue at hand. Yet, a reflection over the current management situation in the Philippines is needed if a change is to occur.

Regarding the management of food services in rural and urban areas of the Philippines, concerns over proper temperature control and storage methods come to mind due to a lack of knowledge or accessibility to such methods. This is a huge concern in relation to spoilage, cross contamination, and foodborne illnesses. On the other hand, water has its fair share of concerns. As opposed to the typical water systems, the water used by a majority of Filipinos is attained from rainfall, underground sources, and surface water sources like rivers and streams. Preferably, collected water should be free from contamination, but due to a lack of monitoring, contamination is pervasive. Contamination by various contaminants, like fecal matter and toxic pollutants, can be contributed to the lack of water systems or water management. Without proper water sanitation, the contaminants left in the water cause health complications and often death. The magnitude of this calamitous situation reaches beyond just the household. "Water is essential to health and food production. Currently, nearly 800 million people lack dependable access to clean water and about 2.5 billion lack access to modern sanitation, putting them at risk of disease" (USAID, n.d.). While looking at this fact provided by the United States Agency for International Development (USAID) the stark reality of water and sanitary methods is bleak for many unfortunate countries. The Philippines, one of those unfortunate countries, holds a large population denied the right to sanitation for safe, affordable food and water.

Despite there being standards and regulations in place to protect Filipino resources, a lack of government intervention and enforcement appears to correlate with lack of safe resources. In article 24 of the Convention on the Rights of the Child ratified in 1990, state parties recognized that, "States Parties shall pursue full implementation of this right and, in particular, shall take appropriate measures: To combat disease and malnutrition, including within the framework of primary health care, through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and clean drinking-water, taking into consideration the dangers and risks of environmental pollution" (FAO, n.d.). Despite a premise based on the welfare of the population's health, the intentions expressed by the state parties to provide adequate nutritious foods and clean drinking-water are not always fulfilled. A prime example of these shortcomings concerns the Marilao River System.

"A monitoring programme for the Marilao River System ... confirmed the contamination of the Marilao River System by heavy metals, with the levels of many exceeding the surface water standards set by the Department of Environment at one or more monitoring stations. Furthermore, in a number of groundwater samples, the levels of manganese, zinc, nickel, and cadmium in

groundwater exceeded the Philippines National Drinking Water Standard. At least one of the groundwater sources sampled was being used as drinking water by the local community” (Greenpeace, 2011, p.18).

This report from the Greenpeace organization exemplifies how despite standards being in place, the enforcement of water standards was low putting at risk the lives of those accessing the polluted groundwater. Thus, in an attempt to uphold the Convention on the Rights of the Child government management of resources should be improved and examined for a better understanding of the shortcomings seen within the government.

Beginning with the investigation of the government’s ineffectiveness, the involvement of the government must grow with the concerns of the citizens in mind. Citizens and their local organizations need to become active within their local governments considering the actions and lack thereof by the government to pursue reform. Through lobbying by communities directly affected by improper enforcement of standards, there will be adequate representations of the reality of the situation making reform much more pressing. Nevertheless, the practice of such public participation in government needs to be recognized by key figures or well-known organizations so Filipinos can fully appreciate and exercise their political power in government at all levels. Endorsement of involvement in government will empower Filipino citizens to fight for their rights and only through an education on those rights and powers can Filipino communities work with local governments to reach their desired goals.

In addition, the government should issue alterations of policies should intensify the consequences of not properly managing water sources. Most notably stronger penalties are necessary for not addressing the pollution of water sources by industries and other causes of contamination. Pollution, especially in water, must be recognized and focused upon by the government because of its long-lasting impacts on the environment and the health of organisms. The government could issue hefty fines which will provide a deterrent to the mismanagement of water sources. Moreover, the other concern that should be addressed by the government is the management and contamination of food. In tandem with water standards, regulations on food need to be implemented and enforced for improved food management. Means of monitoring food sanitation should put emphasis on the assurance of proper food preparation, handling, storage, and good hygiene by vendors. This can be done through inspection services that consistently monitor the sanitary methods practiced and fine those who do not adhere to the set-out practices. These inspection services would also serve as a means through which the government initiates its ascent towards a program that will foster in local communities and businesses an understanding of proper food management and the practice of good hygiene. Local government concerns over the strict enforcement of both water and food standards will, in the long run, stimulate the Philippines to work towards meeting regulations and mitigate the concerns associated with contaminated resources.

In an ideal world, government intervention on behalf of the welfare of its citizens would aim to strictly enforce regulations on the contamination of water and food sources. Nevertheless, this is not always the case and the introduction of non-governmental organizations (NGOs) may be necessary. By having an entity outside of the government, there are no hidden intentions that may inhibit progress towards the equal distribution or construction of infrastructure for resources. These non-governmental organizations do not necessarily establish and enforce regulations but act as a mean to protect the ideas and rights of the citizens by holding the government accountable. Working by the will of the people, these organizations develop projects that would concentrate on water and sanitation issues, such as the construction of community assets to improve access to resources. Some already existing NGOs that provide services to the Philippines include the USAID and BRAC. Both are appealing platforms for the proposed changes in the communities regarding sanitation due to their acceptance in the area already and existing connections

with the local governments. As of April 27, 2017, the U.S. Embassy in the Philippines' USAID established a partnership between the Tagbilaran City government and the Maynilad Water Academy to “develop and implement a one-year joint work plan that will improve the efficiency and effectiveness of the Tagbilaran City Waterworks System. Participants will exchange best practices, expertise, and technology in water supply operation and non-revenue water management through joint data gathering and consultation, coaching and mentoring, study visits, and on-the-job training” (USAID, 2017). This recent partnership is only a small taste of the combined power of local governments and NGOs. The devoted efforts of both are the first steps in delivering viable solutions to the issues that plague disadvantaged populations in countries deprived of even the most basic human rights. Equally, BRAC has committed itself to offering education to children through an Alternative Delivery Model education, a model that aims to prove quality education can be provided throughout disadvantaged areas (Sangkad, 2016, p.3). The interest of BRAC to bring education to the Philippines is imperative for the betterment of children's lives. Their presence in the Philippines just like the USAID's presents the fact that NGOs are a sure-fire way to begin solving the underlying issues within a country. Both aforementioned organizations with their already existing foothold provide to the Filipino people a chance to empower themselves with the opportunities presented by the organizations. So by encouraging the involvement of NGOs in the Philippines, it would offer a means to focus on specific purposes and opportunities for the people, such as offering education, providing proper management of water systems, and even developing technological advances aimed at improved sanitation for the people and their resources.

Though the option to recruit help from NGOs may be expensive, help from private organizations, partnerships, or even foreign aid can offer the funds for the endeavors NGOs pursue. The Filipino people could be provided inexpensive communal water systems that allow access to clean water. Yet, this prospect can only happen if local governments and NGOs with their partnerships work together to fund development projects addressing clean water and sanitation. At this time such efforts are in action by the hands of the Gates Foundation which grants funding to such technological and developmental endeavors. The Gates Foundation initiated the Reinvent the Toilet Challenge (RTTC) in 2011 which has since funded research towards the development of toilets that “do not require sewer, water connection, or electricity but still operate at a low cost while removing germs from human waste and recovering valuable resources from human waste” (Gates Foundation, 2013). The possibilities that could arise by bringing the RTTC to the Philippines is great and showcases that funding development projects will not just present the opportunity for a solution, but it presents the opportunity to bring together minds that have a vested interest in the betterment of human lives around the world. If offered similar opportunities bright minded individuals within the Philippines could meet the challenge by creating a sustainable solution that addresses the issues of access to clean water, power, and sanitation. Furthermore, this endeavor by the Gates Foundation addresses the expenses of infrastructure projects on local governments by exploring alternative technological methods to provide clean water.

The investment in the development of technology designed to sanitize resources will offer innovative and sustaining solutions. Such investments will come from governments, organizations, and private companies with an interest in developing life changing technology for the world. The technology developed could be used by the population to sanitize contaminated water collected from surface water or wells providing self-sufficiency to communities. A device known as a ceramic water purifier is currently used and produced in Cambodia. It was designed by the United Nations Children's Fund (UNICEF) and the Water and Sanitation Program to filter water, reducing E. Coli and thus diarrheal disease (Bencik, 2015). The development and distribution of devices similar to the ceramic water purifier to both rural and urban areas will give Filipinos the ability to acquire clean water for survival and productivity. The production of such devices could be left to the hands of local government organizations overseen by an NGO so that those in the community not only benefit from the device but from the production process

just as in Cambodia. The involvement of the local government and community in producing the devices under the guidance of NGOs also provides the opportunity to strengthen partnerships as well as the communities themselves. This being because it will deliver a non-revenue driven production system to the community that is perpetually driven to produce devices. Devices may also be allocated to regions as seen fit by NGOs who could produce and distribute them commercially elsewhere. Nevertheless, the feasibility of options relies on the affordability of producing the devices which may prove difficult unless partners of the NGOs fund the endeavors.

A simple but surely effective option to addressing the issues behind water and sanitation is educating the public and professionals. Education on proper food preparation, water sanitation, and personal hygiene is instrumental to mitigating the issue at hand. Even the promotion of simple good hygiene habits, like hand-washing, are key components for decreasing the spread of contaminants and pathogens. Such hygiene habits can be fostered throughout a child's primary education as permitted by a campaign for entire communities as endorsed by the government or NGOs. An example of this already in the Philippines is the GIZ and BRAC's Essential Health Care Program which installed BRAC Learning Centers with hand-washing and tooth-brushing facilities to promote personal hygiene among students and prevent school absences due to hygiene-related diseases (Sangkad, 2016, p.2). This program is a leading example of NGOs combining efforts to address multiple issues. In the case of this program, education and proper hygiene were addressed by creating an environment for young learners which fostered both learning and hygienic practices. With a program like this already in action, only further encouragement by community members and local governments is needed to expand the installation of hand-washing and tooth-brushing facilities throughout the community. Additionally, this program can be broadened to educate students on the proper manners of personal hygiene such as hand-washing to include how to and when it is most crucial.

On the other hand, when looking to promote proper water management the local government and NGOs could issue obligatory training for the setup and monitoring of water systems. This training could be set up for both rural and urban areas to teach the basics of constructing and using simple filtration instruments, how to disinfect water with household materials like bleach, and evaporation techniques to separate impurities from the water. Moreover, training for food services on proper food preparation, storage, and handling should be required by the government in the case of businesses but may be offered for local communities to demonstrate household practices. With the rise of the internet self-paced online courses, the introduction of quick, comprehensive courses focused on hygiene and proper water or food management could be provided by government institutions or outside organizations like BRAC, an organization that can expand its focus on education in the Philippines if it puts funding into this option. These online courses, depending on access to the internet, would be distributed to local businesses in urban areas, communities in rural areas, and any other institutions or people seeking such knowledge. Of course, deployment of instructors for those that lack the internet would be trained and deployed by the organization offering the online courses. However, it must be noted that the "personnel training should instill and nurture an understanding of the processing steps and technologies for each product manufactured or handled and where potential problems exist, and create a keen desire to satisfy and guard the consumers' interests" (Schmidt, 1997). This said the Philippines must want to practice proper sanitation, but that desire can only be fostered through education. Education focused on first recognizing the issue is an essential aspect of reform. An understanding of the issues will allow Filipino people to not only realize the implications of not having safe, reliable sources of food and water but recognize the role of their government as well as their own. Enlightening citizens opens a door towards progress since it is the citizens who must push for these changes when the government does not meet what is expected of them. Thus, by educating and promoting a culture of involvement in their own communities, Filipino

citizens will begin to reach out joining organizations intended to provide them with reliable sources of food and water.

The discrepancies concerning sanitation in the Philippines is an apparent issue and requires immediate action. However, for action to occur the population must come to a consensus over the need for reform. Once achieved the privations of the Filipino people can be alleviated and a foundation can be laid for the achievement of food security beginning with a focus on good hygiene and the proper sanitation of water and food sources. The road towards making sanitation unequivocally integral to the management of resources is long, but it is necessary so that food and water are safe, accessible, and affordable for the people of the Philippines. However, progress cannot feasibly occur without clear targets, which arise from the reform of governance and the involvement of non-government organizations. Vitality, even the awareness about good hygiene and the basics of proper water and food practices is a great development towards solving the issue. The advocacy and activism of informed citizens are ultimately the most instrumental in instigating reform for proper sanitation across resources. Access to potable water, safe food, and hygienic practices is crucial for Filipino citizens. Otherwise, the lack of access to those basic human needs debilitates innovation and the commercial and agrarian productivity of the Philippines. Hopefully, the evident connection between the lack of sanitation and the inhibiting role it has on a population not only provides an understanding of other issues relating to agriculture, poverty, and disease in the Philippines but leads to a resolution through diligent reform, intervention, and education. This issue of sanitation is far more impacting than just good hygiene, clean water, and safe food; it is a right all humans deserve that affects the security of the Filipino population and many other lives around the world.

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