



Editorial

November 19, is the World Toilet Day – the day to raise awareness and take action for the 2.4 billion people across the globe living without access to a toilet. They are still striving to get access to a toilet to live a healthy life with self-esteem, security and strong economy for a better future. This year's theme for the day 'Toilets and Jobs' focuses on linking sanitation with economy and how creating sanitation jobs can have a positive impact on livelihoods.

The sanitation market in Nepal is also gradually growing, thereby, creating job opportunities for many people. More than 25,000 toilets are constructed per annum via the use of largest selling sanitary ware brand in Nepal. There are many other brands available in the market which provide almost a complete series of toilet products ranging from economic, premium, to luxury classes. The various brands of sanitary ware products available in the Nepali market are particularly focused in the urban areas. In the context of rural and remote areas, people are getting sanitary products from local entrepreneurs. However, the quality of those products may not be optimal. Appropriate strategies and mechanisms are very crucial to reach the unreached demographic with good quality sanitation services and products.

Along with the sanitation movement that spans the globe, Nepal is implementing various developmental programs, both in the urban and rural areas, to meet the national target of achieving universal access to basic water supply and sanitation services by 2017. Sanitation is now becoming an issue to openly discuss about. The nation is gaining the momentum toward declaring Open Defecation Free (ODF) areas and achieving total sanitation statuses in various communities. However, the general understanding of toilet and/or sanitation is misleading as the concept of toilet is limited to the superstructure and flushing systems to get rid of shit from sight. The lead article presented in this special e-bulletin highlights why we, sanitation professionals, should focus on excreta management rather than only the construction of toilets. The author further reiterates the need of innovations in this sector that provide complete solutions throughout the sanitation value chain.

While Faecal Sludge Management (FSM) is gaining prominence, particularly in urban centers in Nepal, it is also creating a huge business potential in those area. The potential FSM business in Nepal and its key challenges have been featured in this e-bulletin. Furthermore, different types of toilets and sanitation systems promoted by ENPHO, celebration of World Toilet Day – 2016 have been presented in this e-bulletin.

**Let us focus on reinventing the toilet that considers the entire sanitation value chain and creating business opportunities.
Happy World Toilet Day 2016!**

Rethinking the Toilet

We, the sanitation professionals, are proud to be celebrating World Toilet Day because toilet or sanitation used to be the least priority and ignored topic. Today, the toilet is a top agenda in the development sector, slowly realizing that the toilet has many values besides pooping!

However, we still need a serious debate about what does the TOILET mean? Understanding of the toilet, for the most individual, is simply a place where people can 'poop' in comfort, safety, and with dignity. Most of the people think that the toilet means the infrastructure or superstructure that consists of the simple pan to fancy commode with different types of flushing devices to get rid of the shit so that no one can see after the pool. No one (highly qualified, illiterate, rich or poor) worries where poop goes after the flush.

Creating Open Defecation Free (ODF) zones or "*Khula Disha Mukta Chhetra*" is a common sanitation agenda in Nepal and compliance with other efforts currently underway in the South Asian region. Yes, the campaign itself is excellent and is accelerating toilet coverage. Nepal reached more than 85% of toilet coverage within very short span of time because of this movement. But this should not be an end goal. We need to measure the impact of the campaign in improving the public health (reduction in outbreaks of water-borne diseases, etc.) and reduction in the economic burden incurred by the general population due to poor sanitation practices and lack of available infrastructure.

Let's take an example of Bangladesh; the first country in South Asia to achieve the MDG target in sanitation. Bangladesh has now less than 1% of people practicing open defecation. But the country has been unable to reduce expenses incurred due to poor sanitation. The country still wastes 4 billion USD, annually, due to poor sanitation. Similarly, a recent study of Lixil, Oxford Economics, and Water Aid, 2016, indicated that the expenses incurred by various countries due to poor sanitation increased by 40 billion USD just in five years from 2010 to 2015.

It has been estimated that about 3.4 million people die annually from diseases associated with pathogens in water, like cholera, typhoid, infectious hepatitis, polio, cryptosporidiosis, ascariasis and diarrheal diseases. Many of these diseases are directly linked to the presence of human excreta in the water and the environment. Therefore, without safe management of human excreta from the toilet, we have no reason to be proud. We all know most of our rivers are turning into open sewer canals and previously pristine water bodies like lakes and ponds are being converted into large waste collection pits because all the wastewater is being discharged without any treatment. Concurrently, we are polluting our groundwater because of the poor designs for septic tanks and pits.

Whenever we poo, we need to keep in mind that one gram of poop may contain up to 10 million viruses, 1 million bacteria, 1,000 parasite cysts and 100 parasite eggs. These are the pathogens that can easily mix into water, food, soil anywhere. Unless we manage to eliminate these pathogens, we should not claim that we have managed the shit safely. Fundamentally, there are three ways to tackle the above-mentioned problems:

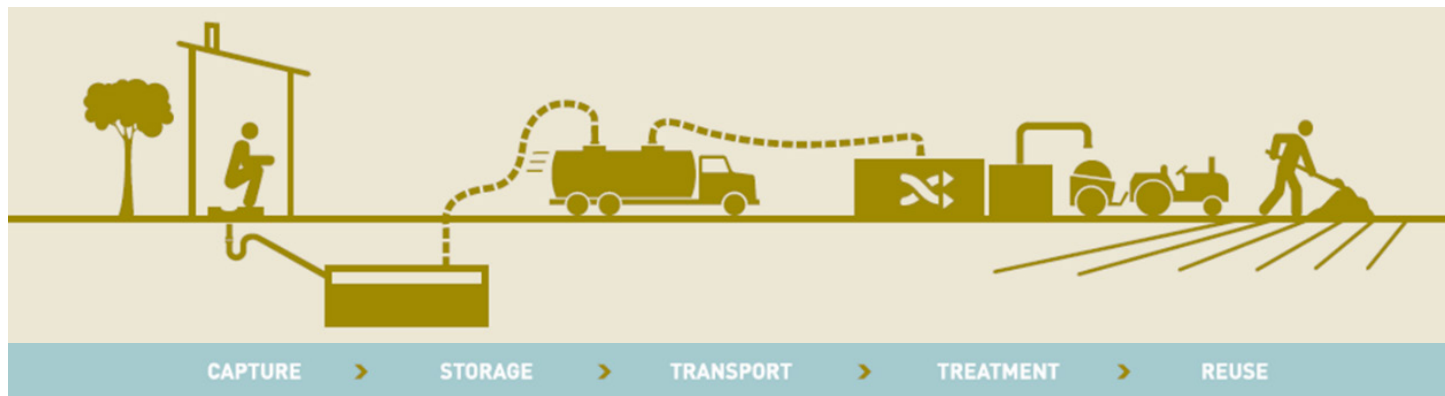


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- a. **Build sewer system including Centralized Wastewater Treatment Plants (WTP):** The scale of capital required ensures that most of the developing countries will not be able to afford to lay down the sewer network and build WTP. It even may not be affordable to the developed countries. For instance, Jefferson County, Alabama, US filed for bankruptcy due to their massive investments in the sewer systems. Large scale system cannot bring about people's participation. The public sector has to finance such projects almost entirely.
- b. **Go with small-scale sanitation system including faecal sludge management:** What needs to be understood is that a population of 2.7 billion people in the world using a small scale or onsite sanitation systems. All kinds of small-scale sanitation systems including septic tanks and pits need to be scheduled for desludging. Faecal Sludge Management (FSM) is a crucial intervention required for safe excreta management. Currently, systematic FSM does not exist in most parts of the world. The

- very important fact remains that people can finance small-scale sanitation systems on their own if policies and regulatory frameworks exist.
- c. **Think of innovations and be ready for Reinvented the Toilet:** To bring about radical changes in the sector, we need innovations. Technologies and practices that are currently in existence, cannot address all the problems we witness presently. The toilet should not be considered the only solution, and additionally the entire sanitation value chain needs to be emphasized – *collection, transport, treatment and reuse*. We, as sanitation professionals, need to see how the cost can be recovered and envision sanitation as a real business. Massive amount of effort is currently underway to bring about an entirely new concept of the toilet called "Reinvent the Toilet". Be ready for it!

Let's dream for that ideal toilet that kills 100% pathogens, uses minimum water, and produces resources such as energy, clean water, and fertilizers. Happy World Toilet Day!



Business opportunities in Faecal Sludge Management (FSM)

As a result of current ODF movement, the sanitation coverage has been increased significantly in Nepal. According to the NMIP/DWSS 2014, the sanitation coverage in Nepal currently stands at 70.28%. Toilets that are connected to the sewer network is around 8% (National Population Census Report, 2011). Therefore, on-site sanitation systems such as septic tank and pit latrines have been predominately built in Nepal. Considering, the population of Nepal as 28,331,826 by the end of 2016 (at a growth rate of 1.35% per annum and the base population of 26,494,504 according to the National Population Census Report, 2011) and the faecal production rate of 0.2 kg/person/day, an estimated 5,666 tons of faecal sludge is generated in Nepal on a daily basis (Terai region – 2848 tons/day, Hill – 2437 tons/day and Mountain – 381 tons/day). Out of which, about 5213 tons of Faecal Sludge (FS) is generated on the daily basis from on-site sanitation systems (via considering 70.28% sanitation coverage and 8% household that are connected to sewer network). Ideally, FS generated from these systems need periodic desludging services. Currently, few private operators and municipalities are providing the desludging services, particularly in urban areas. However, due to lack of appropriate treatment facilities, the desludged FS is being dumped haphazardly into the environment including water bodies. The unsafe disposal of FS is posing a big threat to public health and causing severe environmental pollution.

The study conducted by ENPHO with the support from BMGF in 2014 found that, 12 FS desludging vehicles are being operated by 6 groups of private operators in the Kathmandu Valley. The net profit from the desludging services ranged between NRs 10,000 to NRs 50,000 per month. Under the premise of an increased demand for the desludging services, there is still a huge potential for business expansion. Nevertheless, the study has identified some of the key challenges; the lack of policies, legal and regulatory frameworks on Faecal Sludge Management (FSM); inadequate local capacity for providing quality FSM services; absence of appropriate FS treatment facilities, that impede expansion of the FSM as an ever lucrative business. While there are big opportunities in FS desludging services, additional businesses can be created in establishing FS treatment systems, including management of such systems. The resource recovery from FS is another unexplored areas that potentially has market in the agricultural sector. All evidence thus far prompts the need for the sector to invest and focus on formulating proper policies and legal framework, research and development, building local capacity, and private sector engagement to provide quality FSM services by creating a FSM market in Nepal.

Faecal Sludge Treatment Plant at Lubhu

The Faecal Sludge Treatment Plant at Lubhu, Lalitpur is a pilot implementation by Mahalaxmi Municipality with support from ENPHO, BORDA, Saligram Bal Griha and CDD Society. The faecal sludge treatment plant is a gravity based system and is capable of processing 6 m³ of sewage per week. Furthermore, the operations and maintenance requirements are relatively low and are achieved via treating sewage in the absence of electromechanical equipment. The plant is highly efficient and can be operated without any skilled labor on a day to day basis. The concept of maximum reusability of the end products after treatment are reused, ultimately closing the sanitation loop. The treatment process provides resource recovery options; treated wastewater for reuse in irrigation, bio-solids as soil conditioner for farming, biogas for cooking and lighting, which benefits the treatment plant caretaker. Ultimately, the produce from the treatment plant's caretaker is primarily utilized for consumption by the kids residing in Saligram Bal Griha and excessive produce is sold in the local market.



FSTP at Lubhu

ENPHO's effort towards Environment and Sustainable Sanitation

ENPHO has been promoting various types of toilets contributing to eco-friendly and sustainable sanitation systems.

ECOSAN (Ecological Sanitation) toilet

EcoSan Toilet is an environment friendly sustainable sanitation system which treats human waste as resource for agricultural purposes and food security. The main features of EcoSan toilets are the control of water, sanitization, and re-use as plant nutrients and soil stabilizers. There are two types of EcoSan toilet: Dry and Wet EcoSan toilets. The toilet was first time introduced by ENPHO in 2002 and more than 1400 EcoSan toilets have been constructed till date.



Biogas attached toilet

Biogas attached toilets are easy to use and concurrently beneficial due to the gas production used for cooking purposes. ENPHO has promoted more than 1100 biogas attached toilets till date.



Faecal Sludge Treatment Plant at Gulariya

Gulariya Municipality faced several challenges during the Open Defecation Free movement. Furthermore, prioritization of the needs to be addressed for the achievement of sustainable sanitation were key in gaining long term health benefits in the area. One of the biggest challenges and needs for the achievement of sustainable sanitation was the construction of faecal sludge management infrastructure for systematic management of sludge in latrine pits and septic tanks within Gulariya Municipality. In line with piloting innovative solutions in sanitation, a Faecal Sludge Treatment Plant has been constructed in Gulariya Municipality, Bardiya under the Safa and Swastha Gulariya project. The treatment plant is capable of processing 3 cubic meters of sewage per day and utilizes seven sludge drying beds and single units of settler, anaerobic baffled reactor. Furthermore, 3.7 cubic meters of wastewater flows through the plant per day. Additionally, planted gravel filter (horizontal flow constructed wetland), with a surface area of 28 square meters, processes the overflow wastewater for treatment purposes. The treatment plant benefits over 60,000 individuals, collectively over 10,000 households.



FSTP at Gulariya

Toilet for people with disabilities (Disable friendly toilet)

These toilets are specially adapted for the people with disabilities. ENPHO has been promoting these toilets in the households with disabilities in various communities.



SaTo pan

It is an inexpensive innovation featured simple trap door design that forms a water seal at the bottom of pan set into a cement slab over the pit. The water seal further reduces disease transmission by insects, reduces odor and reduces the volume of water required to flush. This pan has been developed in Bangladesh and as a pilot, ENPHO in collaboration with WaterAid Nepal has promoted this pan in Nagarkot municipality for the first time in Nepal.



Public toilet

To provide improved sanitation services to the people in the community, ENPHO has been constructing different public toilets, since 2013 which include biogas attached toilets and toilets with septic tanks. ENPHO has provided technical support to construct more than 7 public toilets.



Mobile toilet

ENPHO has been promoting mobile toilets since 2012. Since then, the efforts are been made in collecting urine and its further use in agriculture. The mobile toilets have been implemented through an integrated approach of business concept and support in agriculture.



Toilets used in Emergency Response

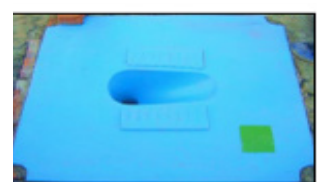
Ready to Install (RTI) toilet

The Ready to Install (RTI) toilet, featured with inner dimension casing 32x36 inches and height of 5 feet 9 inches, are portable, foldable (five pieces) and easy to install which normally takes 2-3 hours to assemble. RTI toilet casing (superstructure) was designed and developed by ENPHO to provide immediate sanitation services during the earthquake response 2015. ENPHO with the support of UNICEF has constructed more than 555 RTI toilets and have been installed in earthquake affected districts during the earthquake response.



Easy pan

ENPHO has specifically designed and developed easy pan in 2012, prior to use in emergency situations for better sanitation services. Easy pan is featured with extended platform which are easy to install during the emergency situations. It is user-friendly and comparatively safe as it forms water seal and uses offsite treatment. To avoid unventilated, the edges of the platform has a slope towards the pan. Furthermore, this pan are durable in nature.



Magic pan

Magic pan are vertical drop toilet used specifically during emergency situations and in a temporary shelter. A magic pan featured with platform made from fibre, syphon and a water seal. This pan significantly uses less water and attached with a cover cap, which further allows to reduce the odor and prevents from insects and flies.

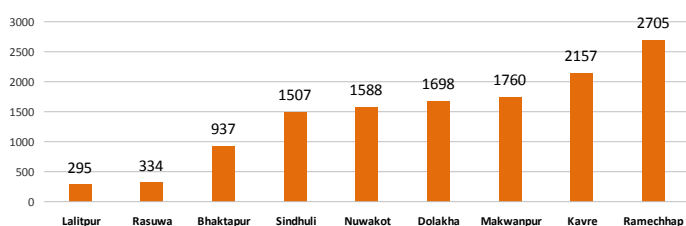


Ensuring access of sanitation facilities during emergency

Ensuring access to sanitation facilities for every individual could be a huge challenge during emergencies. To prevent the possible outbreak of water borne diseases and possible threats due to poor sanitation, ENPHO took a leadership role on providing better sanitation facilities during earthquake response 2015.

ENPHO with the support of various organizations, constructed different types of toilet in order to provide immediate sanitary services during the emergency response in nine earthquake affected districts of Nepal. As of October 2016, the figure below depicts the number of toilet reconstructed and repaired during emergency response period.

Number of toilet reconstructed/repared during Earthquake Response 2015



Unofficial Blockade Spreads Cheer in Ishwore Guro's Family

Kachade village of Bara district, Nijghad VDC (currently Nijghad Municipality), ward no. 4, located three kilometers away from the East-West Highway and adjoining the northern dam at Bakaiya River, comprises of about 238 households with, predominantly, Tharu (Kachhade) residents. After experiencing about 6 months of unofficial blockade causing difficulties in cooking gas imports, currently 145 households have constructed biogas attached toilets under the Global Sanitation Fund (GSF) project implemented by UN-Habitat in partnership with ENPHO and NRCS Bara.



Furthermore, even those who had constructed single pit latrines in the past, having understood the significance of Biogas Plants have rapidly constructed toilets with Biogas Plants and the number is on the rise on a daily basis. A prominent social workers, Mr. Ishwore Guro and his wife Ms. Paltaniya Devi Guro, after having extensively discussed the past difficulties of not having constructed toilets and considering shortage of cooking fuel, currently express their relief on having constructed a toilet attached with a 6 meter square Biogas Plant to provide for the cooking requirements of their 10 person family.

The construction of biogas attached toilets has proved to be very beneficial for the household members, particularly the housewives are elated as this has made toilet use (for the elderly, sickly and children) easy and concurrently beneficial due to gas production for cooking.

ENPHO Toilet Expo - World Toilet Day Celebration, 2016

On the occasion of the World Toilet Day – 2016, ENPHO with the support of CAWST opened its doors for the Toilet Expo at ENPHO premises, New Baneshwor, on Saturday, November 19, 2016 from 11:00 am to 3:00 pm. The expo was conducted under the international slogan of "Toilets and Jobs". The primary objective of the expo was to provide a platform to exhibit toilets used by individuals from all walks of life in Nepal. Additionally, the expo provided an orientation for individuals regarding the current status of sanitation and the subsequent jobs created in the sanitation sector. This expo aimed to act as a sensitization tool for participants to recognize the importance of toilets and sanitation and additionally, help support the contributions made by various sectors; private, governmental, and NGO's and INGO's, in the sanitation sector.



The expo featured three categories of activities; orientation sessions on the importance and current status of sanitation in Nepal, a display section with models of toilets and actual toilets promoted by ENPHO, and a display section featuring sanitary ware that are commercially available in the market. The commercially available sanitary ware were provided for the expo by Parryware.

The expo highlighted the fact that toilets are an integral part of sanitation systems and a wide range of toilets exist spanning a wide market to meet current development demands.

Additionally, with the national target for the achievement of 100% sanitation coverage by 2017, demands for toilets and related sanitary-ware have increased. Additionally, NGO's and INGO's have felt the need to collaborate with the private sector and created linkages in urban centers and rural areas to ultimately benefit the total sanitation coverage effort. All experts in the sector agree that the need of sustainable total sanitation would be better met with the advent of a partnership between all sectors; private, governmental, and NGO's and INGO's. The expo was an attempt to capitalize on the occasion of World Toilet Day 2016 to create one of the first entry points for the creation of a platform for such cooperation and partnerships. In the spirit of partnership, ENPHO partnered with Parryware during the event. Additionally, ENPHO targeted school students, architects, engineers, contractors, and partner NGO's and INGO's as the major invitees during the event. Collectively, 123 individuals participated in the exhibition and orientation sessions.

