

# An Eco-friendly Look Towards Livelihood



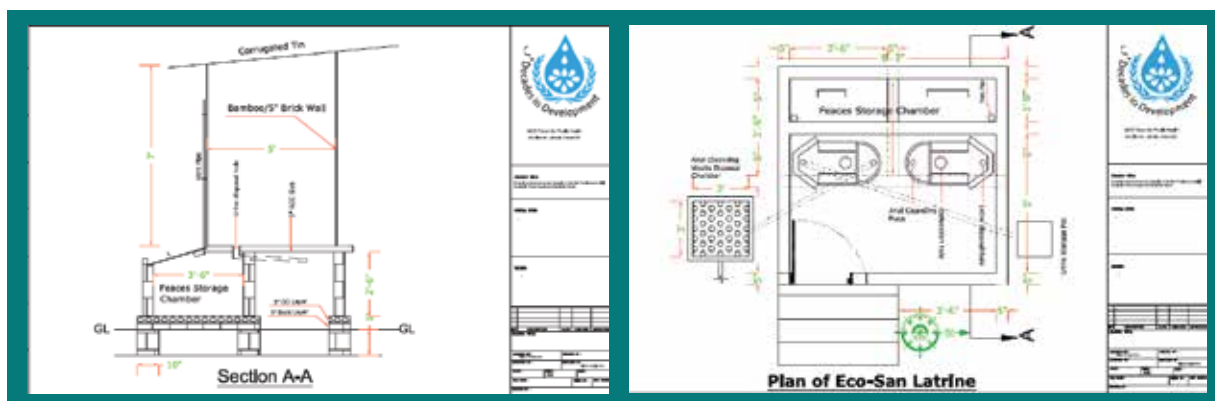
## Introduction

As like many other developing countries the excreta disposal, faecal sludge management, manual scavenging, seepage into environment is becoming a major challenge even though the country has made rapid sanitation coverage. Without solutions to maintain the functionality of latrine through appropriate faecal sludge management, this can put significant impacts on human and environmental health. Open defecation for lack of other options where the human waste is deposited in the environment, while others may use flush toilets where the human waste is mixed with water, transported into the environment, leading to public health risks. Human waste is considered a bio-waste as it is a good vector for both viral and bacterial diseases. The lack of clean water and poor sanitation causes many diseases and the spread of diseases. Considering the hydrological context, communication problem, environmental hazards due to climate changes and other man-made reasons the geophysical context of the hard-to-reach areas are more vulnerable in terms of having little services and facilities including water and sanitation. Health is severely affected as hygiene and sanitation cannot be maintained properly due to acute water shortage especially in the drought zone. NGO Forum for Public Health has been promoting Eco-san facilities as a context-specific and cost-effective technology to help in improvement of health and environment, water availability and food production in the water scarce drought zone. Within the framework of supporting the hard-to-reach drought zone with WaSH facilities, NGO Forum initiated to demonstrate context-specific Eco-san facilities in the drought-prone Nachole upazila, Chapai Nawabganj in early 2012 covering the Jhinaipukur village of Nezampur union and Loilapukur village of Kashba union.

Eco-san has proven to be a context-specific sanitation technology considering the area-specific vulnerabilities of drought-prone zone. The region's hygienic sanitation coverage is found to be still low. Health is severely affected as hygiene & sanitation cannot be maintained properly due to acute water shortage. Alongside, a significant number of poor people are unable to construct hygienic latrine as well as maintain the excreta disposal system. The Eco-san is reducing the health risks related to sanitation, water and waste; preventing water pollution; contributing to preserve soil fertility, improving agricultural productivity and food security; and conserving resources through lower water consumption and substitution of mineral fertilizer.

## The Technology

The types of Eco-san Toilet is separated into two categories, dehydrating and composting. There is also a distinction between urine diversion and systems which mix both urine and faeces. There are a variety of models operating in slightly different ways. Types of treatment are split into primary and secondary treatment. Primary treatment occurs in the Eco-san facility itself (on-site) through such processes as increasing pH level or reducing the moisture content. Secondary treatment takes place by transporting the waste to an alternative location (off-site) for further treatment such as composting or incineration.



Used model of Eco-san

## Production of Compost

Eco-san Latrine using households have produced compost after filling-up the faecal reservoir tank. Some users have only used the collected urine in the crop field as fertilizer and pesticide. The users store a bucket of ash in the corner of the Latrine to use this instantly after defecation to increase the pH level of faecal sludge and keep it dry. After filling-up the faecal reservoir tank, they empty it and dump in open place with enough sun light to make it dry. Then they use this in crops like rice or wheat field or in homestead vegetable gardens as fertilizer. And they use a can to collect the urine. When the can fills up they mix 5 litres water with 1 litre urine and spray it in the crop field/vegetable garden.



## Result

The ecological sanitation is providing with significant benefits to communities and individual households. The recycling of nutrients is improving the environmental health status, is providing with safe sanitation in the water scarce situation and is improving food security through increasing crop production.

## Social Benefit

Before the installation of Eco-san facilities, 8-9 households were defecating in the open. And some of the households using latrines had no proper infrastructure of those. So, female members were facing difficulties in maintaining their privacy during latrine visit. The Eco-san Latrine has ensured their privacy. Besides, women's participation in economical aspect like homestead gardening using compost from Eco-san Latrine has also increased dignity & income for women.



Environment-friendly Eco-san Toilet with homestead garden

## Economic Benefit

In Jhinaipukur village, each of the users has produced compost three times so far. After installation (2013) of the Eco-san Toilet, the farmers have emptied the compost from it three times. This emptying process has saved approximately 1,800 taka/latrine for excreta disposal by a sweeper. A sweeper takes 600 taka for per latrine pit excreta disposal purpose. Now the farmers use this compost in their cropping field. Each farmer produces 5-6 'Mon' (200-220 kg) more rice per 'Bigha' (0.33 acre), in contrast to the rice produced in a non-user cropping field. Now a farmer is also saving 2,200 taka for chemical fertilizer cost (Phosphate and Potassium) per 'Bigha'. Thus, a farmer is saving Tk. 11,000 for fertilizer cost per year. The assessment stands that on an average this Eco-san Latrine contributes approximately Tk. 14,000- 15,000 per year which is around 10% of one farmer's total income per year. Besides, the farmers are also getting some indirect economic benefits. Based on their enhanced knowledge level on health & WaSH, morbidity from like diarrhea, dysentery, typhoid, worm, etc have significantly reduced and in turn reduced the treatment cost of different diseases among these households. During the pre-intervention period women had to collect water (for drinking and personal hygiene) from far away and that was too much time consuming. Since Eco-san is a less water consuming technology, they are spending less time in water collection, and use this saved-time in income generating activities like homestead gardening.

## Environmental Benefit

It was a common practice in these villages to discharge raw sewage or effluent into nearby water bodies i.e. ponds, canals, etc. Since this Eco-san Latrine has been installed according to dehydrating model, there is no chance for producing liquid sludge or seepage into environment. Users directly empty the dry compost after necessary treatment and use it to their crop-field. The Eco-san has reduced the waste and pathogens and as it is a water saving sanitation solution, it is contributing to the conservation of water resources, substituting to the mineral fertilizer, minimizing the water pollution and preserving soil fertility.





Muzibur Rahman: A Successful Eco-san User

**Md. Muzibar Rahman, 50**, a tenant farmer in Jhinaipukur village of Nachole, Chapai-Nawabganj. He migrated from “Diar” area (‘Char’ swamp area) due to river erosion and lack of income generating source and started to inhabit in this village in a government ‘Khas’ land 10 years back leading a 8-member family as a day labor. Then he took lease of some land from a land owner and started producing rice. He took lease of 5 acres land and tried to begin livestock business alongside farming. People of Jhinaipukur including him were very poor & illiterate and have suffered from different diseases for poor unhygienic WatSan system. Half of the households used to practice open defecation and suffered from scarcity of water. They raised

their demands of latrine and water source to UP through CBO. At those times Muzibar was offered to install an Eco-San latrine in 2012. But knowing about the Eco-san Latrine, he refused to receive this type of technology where he has to deal with human excreta. After few sittings with PNGO and NGO Forum staffs he found out that it’s not so worst as he had thought. He does not have to directly deal with the excreta. The technology itself treats the excreta and makes it usable. Besides, it has many benefits in economical, environmental and health aspects. So he agreed to install the technology. As a pioneer of Eco-san user in this village, he has produced compost three times so far. At present he uses this compost in his 1.7 acre rice field. He assessed that he can produce 600-650 kgs more rice per acre than a non-user group. Besides, he can save 600 taka from pit emptying cost and 11,000 taka from fertilizer cost per year. He also assesses that now Eco-San contributes at least 10% of his total yearly income. Moreover, he also gets health and social benefits from this technology. Many visitors including foreigners come to see this latrine and meet with him. As a result his dignity and social respect has been increased. He said that at the initial stage he had to hide the compost being used in his field. Some people teased him and treated him as “Sweeper”. Now matters have changed, he is the successful user of Eco-san, people are becoming curious to know about Eco-san. He added that if any user has hesitation to use the compost he is ready to buy the compost to use in his field.

## **Contribution to Health and Food Security**

Since knowledge level on health especially on water and excreta borne diseases, environmental degradation and improvement of hygiene practices has increased among the community people, the morbidity from diarrhea, dysentery, typhoid, worm, etc have significantly been decreased. Community people reported that they had to suffer from diarrhea once or twice a year. After installation of Eco-san the open defecation as well as urination outside have totally stopped. Alongside, with the installation of Eco-san facilitates homestead gardening by using produced compost has been increased. Now community people produces different vegetables in their homestead gardens and the production of rice and wheat has also increased accordingly. This has enabled the Eco-san users to consume more nutritious food than before and in turn is improving their nutrition status and productivity.

## **Scope of Scaling Up**

According to the experience of Eco-san users, implementers and other stakeholders, it is revealed that Eco-san is a significant contributor to economic, health, environment and social aspects and can be further promoted, if barriers of social stigma and technical challenges are minimized. However, despite its positive result, the Eco-san might be of little use unless the target people are willing to adopt it.

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