The Vetiver Latrine

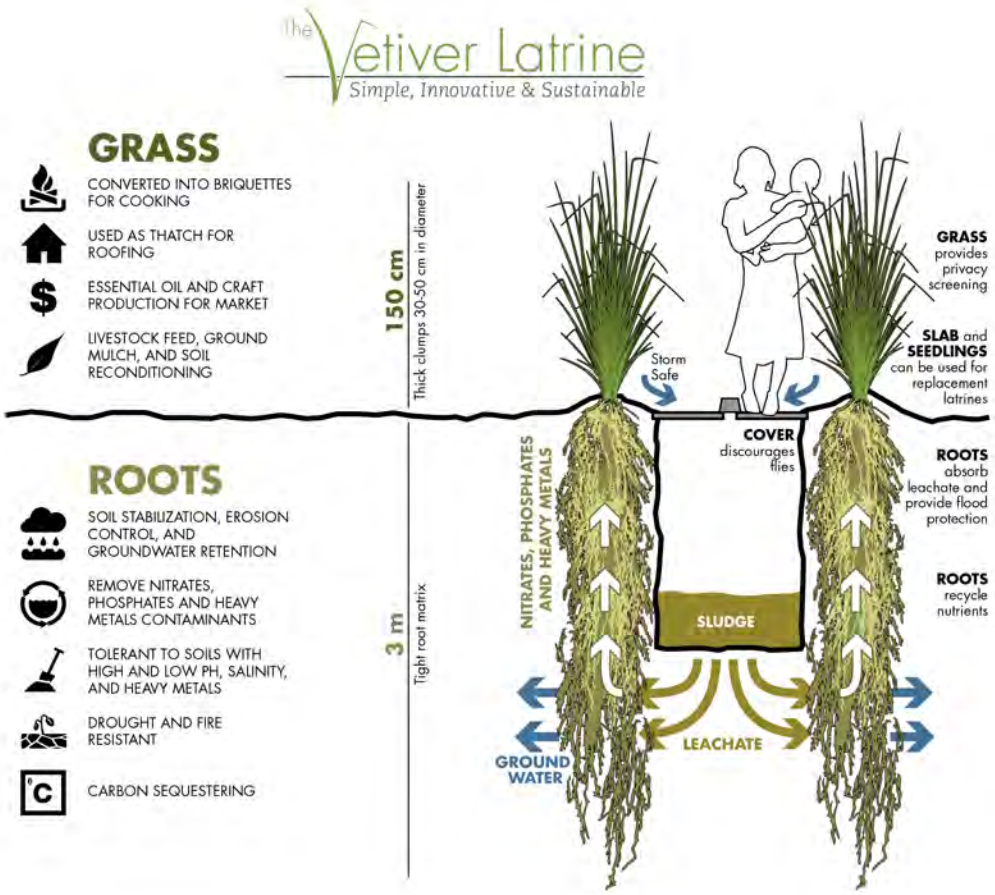
Simple, Innovative & Sustainable

Background

In our world of ever evolving technology where we have access to an infinite amount of information through cell phones that can become out of date in six months, we sometime we take for granted the basics. It is easy to forget that more than one third (37%) (WHO 2012) of the global population does not have access to adequate sanitation. Sanitation is considered the greatest medical advancement attributed to almost doubling life expectancy (BMJ 2007). It is estimated that access to adequate sanitation can reduce infant mortality (Spears 2012) to reduce the 750,000 childhood deaths annually attributed to lack of sanitation(Li Lui et al 2010).

The majority of those without access to improved sanitation are in rural areas and the poorest. In sub-Saharan Africa and south Asia, it is estimated that 72% of those who do not have access to improved sanitation live in rural areas (WHO 2012). The poorest people are also the most affected. For example, in south Asia staggering 93% of the poorest fifth of the population do not have access to improved sanitation (WHO 2012).

Barriers to accessing sanitation include local populations' lack of acceptance of the need for improved sanitation, cost, access to materials, and access and cost of skilled labour. In a recent study, 85% of those who did not purchase a latrine said they had difficulty saving for two to three years for the money needed to construct a latrine even though they wanted one (WSP). Not only are current pit latrines relatively expensive, but they may contaminate the ground water(Guness 2005).



Simple:
A Vetiver latrine is simply Vetiver grass seedlings planted around a small concrete slab above the pit. Instead of bricks and mortar the long roots of the grass stabilize the pit and even remove environmental contaminates. Above ground the blades of the grass provide a tall, thick privacy screen that is effectively storm proof and cannot be misused for storage. The design is simple enough for the household to construct themselves with some basic training. Once the latrine is filled, the slab and seedlings can be transferred over to the next pit location.

Affordable:
Other than one bag of cement, some rebar, local materials' and vetiver seedlings, no further pit lining is required. Once the slab is made and the Vetiver grass is planted, no other inputs are required. The next latrine can be constructed with the same slab and seedlings from the previous latrine.

The latrine is affordable to the most disadvantaged families. A vetiver latrine is approximately **one twentieths of the price of a traditional latrine** because there is no need to transport a large quantity of bricks and construction materials to remote locations for the pit lining and housing and no need for skilled labour for construction. The time required to save for a latrine can dramatically be reduced from two to three years for a normal latrine (WSP, 2005) to about two to four weeks for a Vetiver Latrine.[1]

Sustainable:
Vetiver grass is used all over the world because it is effectively sterile (Hopkins, 2002) thus it cannot become an invasive plant. It grows in place relatively quickly and has very long roots that support soil stabilization. Vetiver is a non-food crop that is commonly used to prevent soil erosion and reconditioning, and it promotes water retention and essential oil production. It is used in wastewater treatment and has been shown to remove nitrates, phosphates, and heavy metals contaminants (Zhen et al, 2007). Vetiver is also a C4 grass that is extremely efficient in converting the nutrients from sludge and sunlight into usable energy.

The Vetiver latrine can transform what was once considered waste into a useful commodity. Since there is no direct contact between the fecal matter in the latrines and the harvested grass, there is very little risk of contamination. The harvested vetiver has many economic, agricultural and health supportive applications for families. These include possible essential oil and craft production for market, thatch for roofing, seedlings for soil stabilization, animal fodder, and a soil enhancing mulch that retains soil moisture.

The most exciting application for the harvested vetiver is part of an integrated system to provide eco-friendly, smoke-free, available cooking fuel. The vetiver can be collected from the household latrine and compressed into fuel briquettes using simple manual tools like the Bryant Press. These briquettes can be integrated with rocket stoves to provide smoke-free fuel-efficient cooking systems. In addition, having such a sustainable cooking fuel source close to homes means families do not have to spend as much time on sourcing or preparing alternative fuel sources.

Project outcomes to date:

Since May, 2012, Vetiver Latrine trials have been conducted in the mountainous village of Pincroix in central Haiti. The village is extremely remote with no vehicle access in the rainy season and health care facilities are dangerously distant. Population is approximately 2000 people and it was severely affected by the last cholera outbreak. There is little sanitation in the area and the local water sources have been determined contaminated.

Test trials were initiated to determine if Vetiver Latrines could be beneficiary built and if the community would accept them. In groups of 10-15 households, participants attended an information session explaining the benefits of good sanitation and basic hygiene promotion messages. All of those who attended chose to construct their own latrine, accepting that only external support given would be: lending of tools, technical support, one bag of cement and two pieces of rebar. Participants learned the more technical masonry work by pouring the slabs together with the other 10-15 houses under the guidance of a local skilled mason who learned the skill through the project. The program was extremely successful: 95% of those who participated completed their latrine, for a total of 116 latrines constructed in six active

[1] Based on saving 30% of earnings of $2/day

Citations:

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