

DEEP DIVE SUMMARY REPORT

SCORE

Human-Centered Research and Design for Latrines in
Haor and Char Areas of Northern Bangladesh



THE HUMAN CENTERED DESIGN CHALLENGE:

How might we design a user-desirable, affordable, commercially viable, environmentally sustainable, and technically feasible home latrine solutions for the haor and char areas?

USER INSIGHTS: FINDINGS

THE CONTEXT:

Haor and Char areas have different context with a few things in common

The Haor and Char areas are different in many ways and therefore, should be treated as such. Following differences that were observed/understood between the Haor and Char areas:

User/actor mindset; User/actor motivations; User/actor sanitation behaviors; Supply chains; Subsidy behavior; Transportation; Climate; Disaster Resiliency and Physical Environment

Perception of wet season

While the outside world thinks that during the rainy season, these areas both haor and char become isolated islands; targets for poor health/hygiene, lack of transportation, disaster zones, and overall inhospitable dangerous environments. The users' opinion on this topic is different than outside world. During the wet season, households have more money due to recent harvest profits, are able to get around quite easily and cheaply by boats, and notice less disease/sickness than in the dry season. Furthermore, for some residents, the rainy season provides additional and necessary opportunities for income generating activities like fishing or boat operation.

Lack of consistent definition of "Improved Latrine"?

Across all stakeholder groups, in both areas, there is no consistent definition of an improved latrine. Some stakeholders think it is X while others think it is Y or somewhere between the two. The definition ranges drastically from a fixed point, open pit with simple enclosure all the way to brick superstructure with offset subsystem. Due to this lack of a consistent definition, it is difficult to satisfy all stakeholder groups across the value-chain. What a consumer thinks is an improved latrine, is very different from what implementing NGOs think it is or even the government.

Access to latrine producers

All non-users express a desire to own an improved latrine and they know where to buy one. Even women. People see the latrine parts being manufactured at latrine producer shops on roadsides or in the local bazar. For women who do not leave the household, they hear from neighbors or the head of household about point of purchase. Even if a latrine producer is close to them, they will often go to multiple producers in order to find the best quality of parts.

Food is more important and most households are food insecure

Desire and knowledge of where to purchase is not enough for non-users who are food insecure. Food is the number one priority and only until a household is able to secure "*three meals a day*" they will not likely to prioritize the expense of a latrine. However, it is more than just prioritization. It is about self-perception. If non-users cannot manage to feed themselves and their families, they do not perceive themselves as latrine-ready because latrines are still very much an aspiration, for those who have very different circumstances than themselves.

Perception of health benefits

Because latrine users are living so closely to non-users who are actively open defecating or using poorly maintained fixed point options these users still are ill with bacteria borne infection and sickness. There is little to no perceived difference in a positive change in health with latrine adoption. However, users have a *better* mental feeling as they are now free from shame, holding until darkness, and the dangers of open defecation.

THE HAOR: PEOPLE - PRODUCT – SERVICE

CHALLENGES

Spending Priorities

In the haor, there are two categories of spending priorities: life and home. Life priorities are informed by food security first followed by: agricultural inputs, livestock and followed by things such as, medicine and children's education. Only until the aforementioned have been satisfied households can one begin to think about the home and improvements that need to be made. Latrines are considered a home improvement but take second place to other essential items such as roofs, raising of mounds, home siding. Home improvement spending occurs at the end of the dry season in preparation for the wet season. Only, and only until a household is “secure” financially and physically will they consider purchasing a latrine.

Need for tangible benefits

Households do and will invest in extra, non crucial items but only if the benefits can be automatically experienced or seen for example like solar panels.

Household wet season practice

During the wet season, some households might flood a bit but it is considered more of an inconvenience than a disaster. If households do flood they will make sure to prioritize raising their mound but only just to the level of the last flood, nothing more, nothing less.

Current sanitation situation

Current non-latrine owners are doing one of two things: 1) open defecation or 2) using a fixed, point hanging or in-ground fixed point. Those using a fixed point hanging or in-ground fixed point are doing so because this is what they were told to do instead of open defecation. Those actively open defecating are doing so because their fixed point latrine has broken and they have no resources to fix it. These latrines are used year-round and retrofitted and adjusted to flood water heights as needed. Users think and call these apparatuses “latrines”. When the research team asked to see households’ latrines, fixed point hanging or fixed point ground were shown.

Impact of Community Led Total Sanitation (CLTS)

Due to CLTS promotion people think that if they are using a fixed-point solution they are not open defecating. Non-users believe that open defecation is the act of leaving one’s house and walking to find a jungle to relieve oneself. Defecating in open, flood water from a hanging latrine or off of a boat is not considered by users to be open defecation because it is different from their dry season practice.

Household’s immediate priorities

Land:

Non-users in the haor believe that they need “a lot of land” in order to purchase and install a latrine. This is due to the current practice of installing a latrine on the edge of a mound, far enough away from a household as they are considered “unholy” and have a bad smell. Furthermore, this perception is solidified by what non-users *see/observe* all over the haor areas: households placing latrines on mound edges.

Money:

There is a very little price awareness amongst non-users, no one really seems to know what parts/pieces cost and more often than not, they think it to be far more expensive than it actually is.

Rings:

In order to purchase and install a toilet, non-users believe that they need at minimum five rings because this is what they see in their communities so they believe it to be the necessary standard. They think that anything less than that will fill up too quickly.

Subsidizes latrine component

Many NGO’s and even the government have flooded the haor markets with free latrine parts in the hope that households will install and use them. For the majority, this is not happening because non-users think they need a minimum of five rings to install and use. The free parts only consist of two/three rings and one slab. Non-user households will wait until they can afford to buy the *appropriate* number of rings. In some rare instances in the haor, the freebies are a driver to installation and adoption but these households will still purchase additional rings before installation.

Gender dynamic for purchase of latrines

Male non-users in the Haor areas do not consider latrine as a requirement. The male head of a households ultimately decides to purchase or not to purchase a toilet while the wife can suggest and encourage. Another challenge is that many extreme-poor households in the Haor have migrating male populations who are not home to use a latrine therefore less demand. Women members of household have limited agency or income.

Self-Installation

Once the parts have reached the household, the head of the household usually installs the toilet with the help of his family/neighbors in order to avoid paying for sub- and mid-structure installation costs.

The exception: if a household has purchased an off-set pit latrine at which point installation by a mason is almost always demanded because an off-set latrine “*has a lot of parts*” and households do not have the confidence that they can properly install something so technical. If a household has money enough for a tin superstructure they will purchase the materials and call a carpenter to install it because households view the superstructure as technical work that only a carpenter should do. If the superstructure can be seen from afar, households would like the superstructure to look nice/upscale as this new latrine is a sign of honor and prestige.

Location of latrine installation

Whether the latrine are direct pit or off-set pit, if space allows, all households will install their latrines on the very edge of their property below the flood water level because they want to use the flood water as a yearly pit-cleaner and this is the common, observed practice. As well as, the latrine is unclean/unholy, latrines smell and should be kept far from the house. Once a latrine is installed on the edge of a mound it is only a matter of time before it fails because the rings are above ground and are not reinforced by anything and the earth erodes with flood water causing the mid-structure/pit/rings to collapse. At the edge of the mound, latrines are subjected to large waves and currents which destroy superstructures instantly. Existing technology are not working not due to the design but due to placement.

Fecal Sludge Management

Fecal sludge is managed by nature, the flood waters. Most current latrine owners are not properly managing their full pits in the dry season because they rely on the wet season to do this for them. It is easier, less expensive than hiring a sweeper and there is very little awareness that releasing raw sludge into the water is harmful. At the start of the wet season, latrine owners will actively open their pits so nature can do its job. Furthermore, there is a belief that if they don't open their pits in the wet season, too much water will get in and destroy their latrine system. In the haor areas, there is an extreme lack of awareness surrounding fecal bacteria in flood water. For those who are aware, that is it wrong/bad, they see no other alternative because they just cannot afford a latrine.

Latrine replacement

Once a user has purchased and adopted a latrine they will continue to replace what is broken/damaged from season to season if their finances allow for it. They will return to the same latrine producer and purchase what is needed, bring it home, and install it in the same place and in the same manner as before. Latrine owners have experienced and seen the benefits of having a latrine in their homes and therefore will continue to have one at the household.

Latrine producers' business practice

Latrine Producers are actively instructing households to place new latrines on the side of their mounds because 25% of their yearly revenue is comprised of replacement rings and slab parts. Latrine producers are not incentivized to educate customers on the benefits of a long-lasting, flood-proof latrine. Due to the amount of competition, latrine producers are price-competitive and in order to stay in business they compromise on quality. They lower the quality of their product with incorrect material ratios or switch out more expensive materials to less expensive ones like brick chips/stone chips.

Latrine producers' customer service

Latrine producers still farm for personal consumption and some stop their cement business altogether in the dry season to farm full-time for income because the profits of owning/operating a latrine business in the dry season are not enough.

Challenging environment

A major stakeholder in the haor latrine market are the implementing NGOs and reaching scale and true success has been a challenge due to the inhospitable working environment of the haor areas. Field

visits are remote, transportation is not easy/accessible in either wet or dry seasons, and staff retention is low due to the difficult nature of the job.

OPPORTUNITIES

Newly purchased land

Newly purchased land is a driver to latrine purchase and adoption because users view this as an opportunity to do things right and start fresh. A new home build is a behavior-changing event and a user's self-perception changes from one of survival to one of increased affluence and social status. With this new social status, a latrine is considered necessary.

Wet Season

After a household has made a communal decision that a latrine will be bought and installed, the male Head of Household will begin the purchase and installation journey. This starts after harvest, at the beginning of the wet season, when households have the most money in their pockets when transportation is far easier (and far cheaper) with a boat, and importantly, when users have more time due to a lack of agriculture activities. Additional accelerators to purchase are extra income from a good harvest, out of town guests, and marriages.

Access to finance for latrines

Informal and formal loans are ubiquitous in the haor area. Households are unafraid and have no problem with finding the appropriate loan option in order to complete their toilet purchase if they need it. The rate of repayment is very high and this behavior is deeply fixed in these communities due to the prevalence and work of BRAC, ASHA, and Grameen.

Availability of latrine producers

Latrine supply is not a challenge in the haor areas. Latrine Producers/businesses are many and competition is prevalent. Purchasers have their choice of who to buy from/where to go and Latrine Producers have noticed a difference in where their customers are coming from -- years ago, customers would travel great distances but now most customers come from nearby.

Even though it is remote, the supply chain is working very well.

Latrine producers expressed no challenges or discontent with either their suppliers or the availability of materials/supplies because these materials will always be available locally as they are used in all structures in the haor: cement, rebar, sand, stone chips. However, latrine components such as Sato pans or pipes (off-set latrines only) occasionally are out of stock. In both, wet and dry seasons latrine producers can always get what they need to produce latrines and they have their go-to suppliers for what they need.

THE CHAR: PEOPLE - PRODUCT - SERVICE

CHALLENGES

Income generation

Agriculture is the obvious income generating activity in the dry season and this includes high-value horticulture cultivation despite being hours from a nearby, large market. However, for many households, that income is not enough and so the head of household will migrate to larger cities for work but only for a short amount of time because they know they must return home to harvest and "prepare" for the wet season. Males and head of households always return to the char. Upon return (May/June) with money in their pockets, households begin the yearly process of wet season/flood preparation which is nothing short of a science. These activities include mound raising, necessary house fixes (roof/siding), storage. This preparation continues into the beginning of the wet season with the addition of new activities such as banana boat creation and raising/lofting all household items off of the ground.

Household spending pattern

Once household's basic needs are met: food, agriculture inputs, medicine, education and there is money left over the first thing they will do is begin the task of raising their mound. Raising land is done in the dry season and depending the size of the mound households hire laborers to help or they ask

family members for assistance. Once land is raised, only then can households begin to think of extras like animals, latrines or more sturdy home materials. Extreme poor households are often unable to raise their land because of the costs/availability of soil and are at the mercy of nature, and neighbors.

Trend after flooding

Once the water recedes households will survey the damage and begin replacing and repairing items based on what is critical first. If households have lost everything: homes and their mounds have eroded they will look for a new place to live nearby and begin building their new home.

Current sanitation situation

Most households have a latrine. And some households in the char have been using a latrine for almost twenty years and some households have been using the *same* one for that long. Latrine subsystems last longer than homes in some cases. Users in the char have very simple direct pit latrines with a concrete slab. Most households have one ring only but will complete the pit with handmade bamboo baskets to save on buying rings, the pain of transport, and because the bamboo is theirs.

Latrine upgrade and perception of price

If current latrine users and non-users want to buy an improved solution they are ill-prepared to do so because they have incorrect pricing perception. Despite these misconceptions, users know where to go to buy a latrine, they are aware of transport costs, and are comfortable with installation.

Latrine location

Most latrines are below flood level on a mound because users have prioritized building up their homes first. Users cannot use their latrines during high flooding times. But they will try to use their latrines until it is physically underwater. During this time, residents use banana boats which they go off the side of. Everyone does this and has been doing it years.

Sanitation Awareness

Users are aware of the unsanitary nature of this practice and understand the connection between bacteria in water and sickness. Sickness is greater in the wet season but they have no other choice and during this time, they have competing life-critical priorities. All current latrine owners desire to have a latrine that is above flood-level and when asked what they would do differently with their latrine they say they would raise it to the height of their mound. But the mound must be raised first.

Rebuilding of latrine

All current latrine owners regularly maintain their latrines before and after the flood season just as they do with their homes. Before the flood season, households hire sweepers to clean their pits or do it themselves following the recommended practice of removal and placing in dug holes around their agriculture lands. Users do not open their pits during the flood season. They keep them closed because they know that if too much water enters the system, it will be ruined/fail completely. Once the water has receded, it is the woman's task to clean the household latrine while the head of household surveys the damage and begins to replace what is needed.

Remoteness of the area

The char areas are extremely hard to get to in terms of time and physicality. International NGOs rely on local NGO's and governments to provide them with accurate information about ongoing interventions, impact, and beneficiaries because it is difficult for program officials to actively visit and observe these areas at all times. This leads to bad and incorrect information.

Options of latrines

Latrine Producers in the char offer one latrine solution because there is no demand for others: rings and slab for a direct pit. While Latrine Producers also produce other concrete household items, they are uninterested in diversifying their product portfolios because it would just add complication to their work and supply. Because there is no demand and they flood too.

Latrine producers two-fold challenge

Just like households in the char, Latrine Producers face the same challenges but twofold: at home and with their shops. At the beginning of the wet season, Latrine Producers bring all of their current product to higher ground with the hope of selling. They are only able to produce in the dry season because of this behavior, they do not have the space to produce as it is flooded. Any additional product that they cannot before the wet season sell is a burden.

OPPORTUNITIES

Land ownership

Residents living in the Char areas have lived there for generations because land is owned land that is passed down from father to son. Some households may move from time to time but will stay in the same vicinity and the only reason households will move is because their land/mound was washed away from the last flood. The people of the Char are innovative, perseverant, and resilient and these behaviors are applied to all facets of daily life.

Dry Season Supply Chain

Once the char dries out enough, Latrine Producers can get back to work and prepare for the influx of households coming for replacement parts. Materials are procured from the closest possible location (and the Producer begins to bring things piece by piece to his shop where his masons are waiting and ready to begin the production.

Awareness regarding sanitation

The current substructure technology is perceived as working well by users: ring/slab configuration with direct pit. The aspiration is in the height and superstructure to make a new latrine "flood-proof". Users know that in order for an entire latrine to last through flood seasons it needs to have concrete supports and tin structure and these

Perception of floods

External assumptions and beliefs about the flooding in the char are incorrect. Male and female residents of the char appreciate and need the annual flood because they know that it is essential for their agricultural livelihoods. In fact, households in the char even those with raised mounds expect a small amount of water to get into their house because this is how they have lived their entire lives. It is when the flood water consumes a house (water up to neck level) when households begin to grow concerned. Yet, the entire family will stay together until impossible on beds lofted high within the home. This inundation only lasts on average 12-14 days between September-October and while it is considered dangerous and inconvenient, households manage.

Reliance on community

If during these days the situation becomes too dire, the women and children will vacate their home and seek shelter on higher ground. If they have nearby relatives they will seek refuge there or they will go to neighbors homes on higher ground, some go to a government shelter. While this occurs, residents of the char rely heavily on one another and there is a sense of oneness, teamwork, and generosity of resources which slightly eases the pain of this very difficult time. The head of the household does not leave during this time; he will stay with his house in order to do/save what he can.

Note: Heavy flooding doesn't happen every year and heads of households are constantly monitoring the weather during the wet season from their mounds, or at the bazar or shop television.

Latrine producers' business practice

Latrine producers in the char have little to zero competition because the sanitation market is still quite immature and due to a lack of NGO presence. Neither customers nor latrine producers see this as a problem. Customers need latrine parts and latrine producers can supply them. It is purely transactional. Without price competition, latrine producers are not pressured to lower their quality which is very helpful for these areas. However, char customers are quality-conscious as they desire their latrine parts to outlast the environment. If a latrine producer does not have the necessary quality on a certain part, customers will travel even greater distances purchase quality. Distance and difficult roads/terrain do not stop the households from purchase or continued latrine use because all char residents are accustomed to these conditions: everything is brought to the household this way.

DESIGN PRINCIPLES

Importance of livelihood intervention

There is a great opportunity to build off of existing Shouhardo III programming and impact data as a sequential intervention. With current data, WASH implementation and field operations can accurately target communities that may now be food secure, or have seen a positive difference in income, built up their mounds/homes.

Seasonality is everything.

Seasonality needs to be considered for timing of the activities including capacity building and awareness raising.

Awareness and Messaging: Open Defecation

Non-users must be made aware that their current wet season practices of defecating in water are unacceptable and still considered to be open defecation.

Interventions needs to be contextualized for haors and chars

Bad behaviors and practices have gone on way too long in these areas and if we want to be successful in getting people toilets in the char and haors, intervention implementation needs to be done differently than the mainland because these geographies and users/actors face different and extreme challenges. The implementing partner must be directly involved at a field-level and provide consistent and accurate qualitative and quantitative data to all stakeholders so that representation has a clear understanding of what is happening. Adaptive management and design iteration are required for implementation.

People want toilets they can use year-round

There is no user desire for a new product innovation in these areas. Focus should be given on what is possible to improve and well as build on what is working well.

A single, agreed upon definition of what an improved latrine is for the haor and char areas.

For example: Slab/pan with water seal. Sealed, buried pits (3 or more) with no smell or flies. Contents never released into water. Regular cleaning with sweeper or following best practice. 30 ft from tube well. The definition should be verified by industry experts and government agencies.

Haor	Char
<p>People</p> <ul style="list-style-type: none"> Ensure that households in the haor are aware that the current latrine practices are incorrect and must be addressed. 	<p>People</p> <ul style="list-style-type: none"> Reinforce good latrine practice as being a year-round activity
<p>Product</p> <ul style="list-style-type: none"> Design a product solution that can be used in the wet and dry season. Design a product that does not add additional cost. Design a product that will stand the test of time throughout the seasons/years 	<p>Product</p> <ul style="list-style-type: none"> Design a product solution that can be used in the wet/flood and dry season Design a product that is a natural upgrade. Design a product that will stand the test of time throughout the seasons/years.
<p>Service</p> <ul style="list-style-type: none"> Educate and guide households on the proper placement of a latrine. Encourage and incentivize Latrine Producers to produce high quality parts and to grow their business. Relieve the pain of cleaning. Work with what is already there. 	<p>Service</p> <ul style="list-style-type: none"> Target the right customers, at the right time. Provide latrines and customers with easier access/transport. Bridge the gap between the customers and the implementing partner to ensure full transparency.

RECOMMENDATIONS

Haor #1

Awareness must come first.

Why?

In order to create a demand for sustainable and hygienic latrines users and non-users alike must understand that certain current behaviors are unacceptable.

This includes messaging and training for the Latrine Producer which should be measured.

Key awareness/Behavior Change Concepts:

- Faeces in water is dangerous/unacceptable.
- No latrine: You don't need 5 rings or a lot of land to install. Let's use what you have. A LATRINE IS BETTER THAN NO LATRINE.
- A latrine won't smell if properly cleaned and installed.
- Latrine Users: You cannot release your sludge into the water, you must have it cleaned properly.
- Latrine Producers: Here is the right place to suggest install and here is the right insall plan.

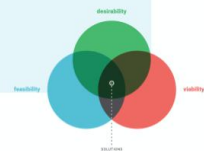


Corresponding Design Principles:

....ensure that households in the haor are aware that the current latrine practices are incorrect and must be addressed.

...educate and guide households on the proper placement of a latrine.

...work with what is already there.



Haor # 2

Honest Broker.

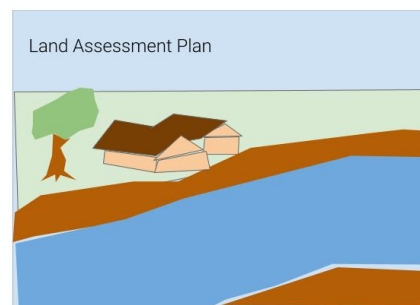
Why?

Users and Latrine Producers cannot be trusted. The implementing project ought to consider a facilitator role that works as a intermediary between the household and the Latrine Producer.

This facilitator will have a few different tasks to ensure quality and control over latrine purchases and installations:

Community Outreach/Land Assessment Plan

- Visits each community and holds latrine presentations. Interested households will then run through a Land Assessment Plan with the Facilitator. This plan will include ideal placement and number of rings based on the survey/water level, etc. Furthermore, this Facilitator can target households that have UNINSTALLED parts and take the necessary steps to ensure that those household are not misinstalling before it happens.
- The household takes this Plan to a project-recommended LP for purchase of what is needed and recommended for their mound.
- The facilitator returns to assess and sign-off on properly installed latrines.



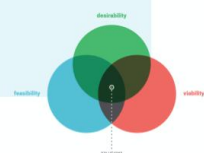
Corresponding Design Principles:

....ensure that households in the haor are aware that the current latrine practices are incorrect and must be addressed.

...educate and guide households on the proper placement of a latrine.

...work with what is already there.

...leave nothing to chance.



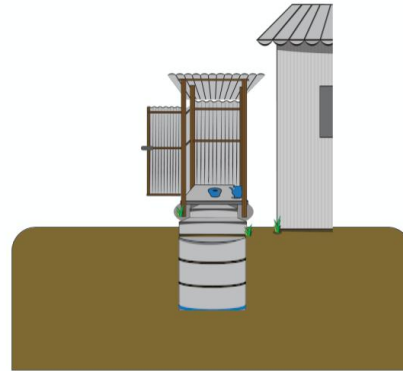
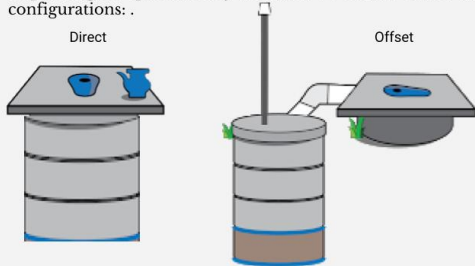
Haor # 3

Away from the edge. In ground.

Why?

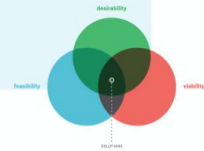
The current product won't fail if is installed correctly and away from the edge of mound and built up to home height. ALL rings must be in-ground.

Depending the space/money available: we can use one or two configurations: .



Corresponding Design Principles:

-design a product solution that can be used in the wet and dry season
-design a product that does not add additional cost.
-design a product that will stand the test of time throughout the seasons/years.



Haor # 4

Upgrade Latrine Producers.

Why?

Because once latrines are done properly, Latrine Producers will notice the difference in their pockets/profit from not selling so many replacement parts (-25%).

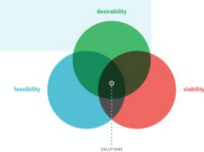
The intervention must allow key Latrine Producers will the opportunity to grow and diversify their product/service offerings:

- On payroll/staff year-round Sweeping services
- On payroll/staff year-round Carpenter services
 - Materials
 - Installation
- Lighting for latrines
- Auto-install built into pricing



Corresponding Design Principles:

-encourage and incentivize Latrine Producers to produce high quality parts and to grow their business..
-relieve the pain of cleaning.
-work with what is already there.
-leave nothing to chance.



Char #1

Raised latrines, to house level (at least).

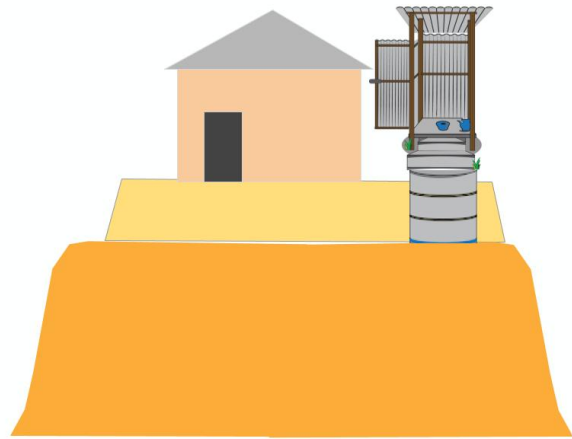
Why?

For those households with raised homes/mounds it is clear progression to raise a new latrine to this level.

Households raise their land above normal flood level and desire their latrines to be this high, too in order to use it year-round.

Pits should be direct, in-ground with a substantial substructure similar to the house.

The target for this solution are households with raised mounds and who have latrines. This is an upgraded solution.



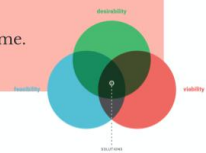
Corresponding Design Principles:

...design a product solution that can be used in the wet/flood and dry season

...design a product that is a natural upgrade.

...design a product that will stand the test of time throughout the seasons/years.

...target the right customers, at the right time.



Char #2

End of Wet Season Sales Showcases.

Why?

Maximize the existing end-of-wet season behaviors by bringing Latrine Producers and product directly to customers (closer than the bazar). Advertise in advance and have credit/loan representatives there.

Instead of purchasing replacement parts, households can upgrade to a "flood-proof latrine".

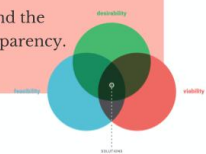


Corresponding Design Principles:

...target the right customers, at the right time.

...provide latrines and customers with easier access/transport.

...bridge the gap between the customers and the implementing partner to ensure full transparency.

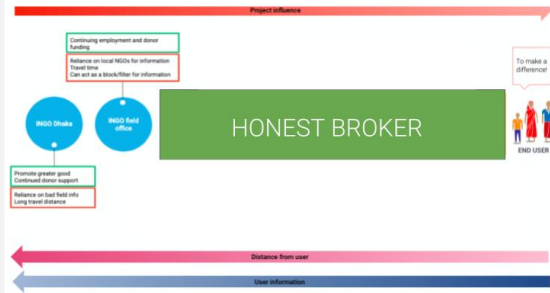


Char #3

Honest Broker.

Why?

Local NGOs and government officials cannot always be trusted in the char areas. There needs to be a Community Facilitator in the char areas who is able to visit often and oversee/monitor what is happening with the current environment, users, Latrine Producers, and continue to build up the capacity of households and instill good latrine practice.



Corresponding Design Principles:

...bridge the gap between the customers and the implementing partner to ensure full transparency.

....reinforce good latrine practice as being a year-round activity.

