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Reaching the Mountain for Solution: Sustainable Dry Sanitation Practices
(A Case Study of Lomangthan Village Development Committee, Mustang District, Nepal)

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Abstract

Nepal is broadly divided into three ecological regions e.g. Mountain, Hill and Terai. Terai is southern flat land having accessible facilities and mountainous ecological belt is high hill having dry and low temperature. The mountain area is remote, less developed and deprived and doesn't have much economic opportunity for livelihood.

Mountain zone is mainly an unreached place in terms of infrastructure, education, health and transportation so there is very less opportunity to improve life. Most of the community depends on local products, technology and practices. Local practice and local materials must be appreciated in these isolated places.

The paper presents a case study of Lomangthang VDC, where located a historical place made of mud. Practically all households use dry toilet. Sanitation, sustainability, traditional practice and benefit of dry toilet and its adaptation are the focus areas of this paper. The paper will attempt to explain how dry toilet solve problems, challenges and benefit of users.

The community construct traditional dry toilet inside house that help to save them from cold weather as well as produces organic fertilizer. The people depend on dry toilet as a factory producing fertilizer for farming. There is hardly accessibility of road, market, chemical fertilizer, manufactured goods of toilet whereas water seal pan is not suitable due to freezing temperatures. Community has adopted a traditional dry toilet like social practice because all people feel comfortable to use it.

Dry toilet reduces use of water in the cold area, product organic fertilizer and decrease expenditure for materials. Moreover, the dry toilet increases agricultural products, decrease dependency in centralized technology and markets. It encourages the use of local skills and local materials that are always available in the village with comparatively economic cost. It is required sustainable sanitation mainly where is lower accessibility and poor people so dry sanitation is a sustainable tool of solution in the unreached a remote mountain zone.

ADD THREE TO FIVE KEYWORDS: Sustainable dry sanitation, reaching mountain area, use of fertilizer, benefit and solution

DRY TOILET 2015

5th International Dry Toilet Conference

1. BACKGROUND

In Nepal, the sanitation and hygiene condition of the different ecological zones Mountain, Hill and Terai (southern plains) is varied. Around 62 % Nepalese are using a sort of toilets. Sanitation coverage in the Hill, Terai and Mountain is 76%, 50% and 60% respectively. Similarly, the sanitation coverage in urban and rural area is 91 and 55 percentage (Central Bureau of Statistics, 2011). In Nepal, the economic cost of inadequate sanitation results in productivity loss equivalent to NPR 10 billion a year, number of people who have diseases due to unsafe drinking water and poor sanitation is 72% and the number of children who died due to poor hygiene and sanitary conditions in the last decade is around 700,000 (Government of Nepal, 2011). Nepal has achieved remarkable progress with sanitation coverage since last five years. Major achievement in sanitation in Nepal made after declaration of National Sanitation and Hygiene Master Plan in 2010. Progressive coverage of sanitation by ecological regions is presented in table below (Government of Nepal, 2014).

Table 1. Sanitation coverage in Nepal 2010 – mid-2014

Region	2010	2012	Mid 2014
Mountain	33.6	46.0	74.48
Hill	52.9	64.0	87.14
Terai	35.6	44.4	56.93
Nepal	43.3	53.7	70.28

Local governments (Village and District Development Committees) are celebrating declaration of their administrative units as Open Defecation Free (ODF). So far 23 out of 75 districts are already declared ODF in Nepal. Mustang is the only mountain district so far declared ODF in Nepal. More remarkably, when it was declared as ODF in November 2013 it was the 8th ODF declared district of Nepal.

This case study of Lomangthang VDC in Mustang district was done in Rural Water Supply and Sanitation Project in Western Nepal (RWSSP-WN). RWSSP-WN is a bilateral project supported by the governments of Nepal and Finland. It is designed to support the Government of Nepal to achieve improved health, socio-economic status and fulfilment of the equal right to water and sanitation for the inhabitants of the Project area. The Executing Agencies of the project are the Ministry of Federal Affairs and Local Development (MoFALD) and its Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR), together with participating District Development Committees (DDCs) and Village Development Committees (VDCs). Underlying the overall objective and the project approach is the notion that lack of water supply, sanitation, and hygiene causes poverty. Thus fulfilling the needs of the poorest and the excluded regarding water, sanitation, hygiene, nutrition, and providing them opportunities to increase their own wellbeing through decentralized governance system will reduce poverty resulting in higher productivity and income.

2. APPROACH TO SANITATION AND HYGIENE IN MUSTANG

The Mustang district straddles the Himalayas and extends northward onto the [Tibetan plateau](#). [Upper Mustang](#), the former Lo Kingdom comprises the northern two-thirds of the district. Major inhabitant of the district are Gurung and Thakali who follow Buddhism. The district lies behind the mountain so it is in a rain shadow. The average annual rainfall in upper Mustang is only 70 mm. The temperature reach down to -9 degree Celsius. Major occupation of the community is tourism, livestock and trade. Human development index of the district 0.527 and Human poverty index 31,16 (UNDP, 2014). Agriculture contribute 40% of total GDP of the district. People from northern boarder still practice bartering system with Tibetan community.

DRY TOILET 2015

5th International Dry Toilet Conference

Total 521 dry toilets are in use in northern 10 VDCs (out of 16 VDCs) of Mustang district. There are 40 dry toilets in Lomanthang VDC. (Progress report of Sanitation and capacity building of fiscal year 2070/071, DDC Mustang)

Lomangthang VDC lies at an altitude of 3,600 meter in the rural area of Mountain zone. It is located 50 km North from the district headquarter Jomsom. It is not connected with all-weather road and transportation of external construction materials is not an easy task. It is also costly to transport. This encourages to seek for local solutions for a number of purposes, including housing construction. Since the area is very cold and covered by snow for about 6 months, only potato and barley are produced. These are not enough for subsistence. The dry mountain climate means that the rainfall is low and consequently, water scarcity is a real challenge. Both the freezing temperatures and the lack of water discourage water-based sanitation. These are just not technically an option.

RWSSP-WN is working in Mustang district since 2013 following Community Led Total Behaviour Change on Sanitation and Hygiene (CLTBCHS) approach. This approach focuses on igniting a change in sanitation behaviour rather than constructing toilets. It does this through a process of social awakening that is stimulated by trained facilitators from within or outside the community. It concentrates on the whole community rather than on individual behaviours. It is fundamental that CLTBCHS involves no individual household hardware subsidy and does not prescribe fixed toilet technology options; it gives several low cost models of toilets for individual selection. The important characteristics are the social solidarity and spontaneous emergence of natural leaders as a community proceeds towards Open Defecation Free (ODF) status. Local innovations of low cost toilet models using locally available materials, and community-innovated systems of reward, penalty, and scaling-up are of key importance. CLTBCHS encourages the community to take responsibility and to take its own actions to practice the above key hygiene behaviours.

The process outlines five key doable and achievable sequence of steps in line with the Sanitation and Hygiene Master Plan 2010-2017, Nepal. These steps can be customized to fit different circumstances and tailored to community settings with diverse cultures. In so doing we learn, and the learning by doing continues. A working partnership has to be developed and maximum local adaptation and innovation are encouraged. During the course of project implementation, it's learned that,

- People are unable to go out from their house for defecation due to very cold in winter season,
- Toilet having water seal is not feasible that the water freezes and block the squatting pan.
- All the households are made of mud and the human excreta dries immediately due to dry nature of soil.
- A kind of dry toilet was practiced traditionally in the area and was socially accepted.

After identification of the reality of the area, community mobilization and sensitization activities takes place adopting the commonly agreed participatory tools, techniques and behaviour change communication materials. The schools, NGOs/ facilitators, community motivators have been involved in community mobilization and triggering process for ODF and behaviour change campaign. All local institutions, schools, political parties, mother, youth and child groups are mobilized with the leadership of the VDC during the entire ODF and behaviour change campaigning period. Consequently, all households and institutions built improved sanitation facilities to declare their respective areas as ODF.

3. SANITATION CHALLENGES AND SOLUTIONS IN THE STUDY AREA

Dry toilet is one of the best option for the study area and the model can be replicated throughout the mountain belt of Nepal and Trans Himalayan ranges. Benefit of the dry toilet in Himalayas are:

DRY TOILET 2015

5th International Dry Toilet Conference

1. The people are using similar type of toilets as their tradition, therefore, minor effort to modify the existing habits is possible. It promotes existing behaviour to the use of safe dry toilet.
2. The toilet is constructed without external materials that doesn't need extra money for the community people.
3. Since the soil is very dry, it decomposes within the period of six months and the decomposed excreta is used in agriculture, often mixed with animal dung.
4. Its environmental friendly it supports to maintain fragile mountain environment.
5. It is easy for operation and maintenance, and does not need of external skilled human resource persons to construct, vacate and operate.
6. It also decrease dependency of the community.

The community themselves decided to construct dry toilet inside the house allocating one cabin for toilet use where the faeces dropped in the room in downstairs. Community used easily available local materials. In the toilets ash was applied after defecation to decompose the excreta. The decomposed excreta is vacated in each six months and used as fertilizer in the field. Here we have a case where misleading information has been provided with regards to composting. This needs to be followed up to ensure that the material is truly composted and safe to use when applied in the field.

4. CONCLUSIONS AND RECOMMENDATIONS

The Mustang case has some compelling lessons about what works and what does not. RWSSP-WN should document these in further detail to encourage more locations to consider dry sanitation as a real, functional and convenient option:

- Dry toilet is not a pilot case – it is time to scale it up and learn from that as there are still lessons to be learned, especially in a country like Nepal that has huge diversity of climatic and environmental conditions, and similarly numerous socio-cultural diversity.
- Peoples' awareness of dry sanitation can be very low – even within programmes which focus on promoting sanitation and building informed demand can give misleading information or approach it as a secondary choice.
- Human factors must not be forgotten. Households are the real investors in sanitation, not the projects or public agencies. Given the diversity in socio-cultural settings, it is a challenge for a project such as RWSSP-WN to pay attention to individual household interests and dynamics of decision making within a household or within a cluster.
- Human factor also influences what people truly want, and whether sanitation is anywhere near their priorities. The usual promotion focuses on privacy, convenience, safety, dignity and status to trigger the feelings within the un-convinced population. These approaches are usually not promoting any specific technology choice.
- Every dry toilet should be a wanted toilet – it should not be a secondary option just because the water seal latrine cannot work due to climatic reasons, transportation problems or due to water scarcity. Dry toilet should not be a secondary choice, a poor man's choice who could not do what most the sector stakeholders do promote: water-based toilet.
- Dry toilet must not be subsidised toilet. The same rules apply to dry toilet as applies to any toilet in Nepal: only the ultra-poor qualify for subsidy. If dry toilets are the subsidized one, it means that they are constructed to the ultra-poor (only). This in turn will only strengthen the idea that dry toilets are the poor man's choice.
- Private sector including small scale businesses, masons working with housing construction, and community-based groups that are involved in various community development initiatives, are very significant actors. In a subsidized approaches these tend to be forgotten, or they are themselves heavily subsidized (for instance subsidizing a shop to sell sanitation materials with lower than market price or with more profit margin than they would normally have). In a remote village where this case study was located, these options are seriously limited, but nevertheless, they are there. These groups do exist even in remote locations.

DRY TOILET 2015

5th International Dry Toilet Conference

- Triggering collective action counts. In the case study location the community cohesion is strong, while this may be less obvious in a highly populated Tarai plains or in semi-urban locations. Yet, there is always space for collective action, Tole Committees and ward-wise development units do exist also in the municipal areas. These groups may also be a way of triggering interest in dry sanitation options through social marketing.

The Mustang case outlined above identified some key lessons, themes, priorities and approaches which are valid also in other areas where RWSSP-WN works. While we are focusing to accelerate progress towards declaring all our working districts 'ODF' and therefore need to work at scale, we should not forget the qualitative aspects of sanitation, its 'human face'.

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DRY TOILET 2015

5th International Dry Toilet Conference

AUTOBIOGRAPHY



I am **Narayan Prasad Wagle** born on January 1970 in Dhankuta district of Nepal. I am currently working in Government of Finland funded Rural Water Supply and Sanitation Project in Western Nepal (RWSSP-WN II) in capacity of Planning and Capacity Development Specialist since last one and half years. I have more than 24 years of experience in WASH and working with Finnish water projects. I have obtained Diploma in engineering and Master's Degree in Management and Rural Development. I have experience working with remote and conflict sensitive area too with expertise in WASH sector planning, monitoring, and capacity development.