

TITLE: INVESTING IN PEOPLE – "USING HUMAN SHIT AND URINE AS ORGANIC FERTILIZER, ENERGY SAVING AND ECONOMIC DEVELOPMENT IN VULNERABLE COMMUNITIES OF NEPAL

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1. Abstract

The RWSSP-WN has been implemented since 2008 in 54 VDC's (Village Development Committees) of nine districts in western Nepal. The project decided to pilot an approach "Community Led Total Behaviour Change (CLTBCHS) in Hygiene and Sanitation" in these VDC's. In this approach local bodies are facilitated and local people are trained to ignite and trigger people to build ECOSAN toilets, use human shit after composting and urine as organic fertiliser. A total of 553 community level structures and systems have been mobilized for the purpose. In total 6700 community level sanitation triggers (49% female) have been trained out of the population of 430,000 in 56,000 households in the project VDC's¹. Economic development and energy saving by using human shit to produce bio-gas activities are also implemented.

An integrated community led ecological sanitation and sustainable livelihoods activities has been implemented which helps to mitigate the diverse pressures on the unique Agriculture Ecosystem, and help to ensure that the livelihood needs of local community members are adequately addressed—both through the development of improved agriculture, energy saving and environmental management practices. The ecological sanitation promotes the agricultural products, creates hygienic and sanitized community, income generation and improved the livelihood of the people.

Research shows that the result of use of human shit and urine gives agriculture production four times more than use of chemical fertilizer (imported urea in Nepal) . The experience tells that each VDC of Nepal is spending money about USD 5800(i.e in average 10 kg/HH x USD 0.58 = USD 5.8 x 1000 HHs = USD 5800.) to buy chemical fertiliser per year. If we calculate this figure for 3915 VDCs , the amount will be USD. 227,6000,0. each year,

As a result, it is assumed that the faecal sludge management , food security and energy saving within the project working area has greatly improved resulting into a reduction in morbidity and mortality of hygiene and sanitation related diseases per year . One example, Mr. Bal bahadur Thapa of Mahendrakot VDC of Kapilvastu district has been able to make a profit of about USD 580 per year utilizing the "shit" and "urine" in his kitchen garden and many more which he has been using to educate his daughter in bachelors' and son in masters' degree in Tribhuvan University, Nepal.

The lesson learnt from this approach can be replicated in other districts aiming to overcome from the 43% sanitation coverage² and reduce poverty in Nepal.

¹ RWSSP-WN, Nepal Progress report March 2012

² Sanitation and Hygiene master Plan , Nepal 2010

2. Introduction

Today 2.6 billion³ in the world and 1.5 million⁴ people in Nepal did open defecation. Diarrhoeal disease due to poor hygiene and sanitation is estimated to cause each year death of 10,500 children under five in Nepal. Of this 72% is due to unsafe drinking water and poor sanitation and hygiene behaviour.

Sanitation and hygiene are a flagrant problem in Nepal. According to the National Sanitation and Hygiene Master Plan (2010-2017) and the Three Year Interim Plan (2064/65-2066/67), access to toilets in Nepal is very low (43%). Clearly, the situation in Nepal illustrates the vital need for the government's recent declaration of the Universal Access Plan for 100% sanitation by 2017⁵. Furthermore RWSSP-WN is conducting community coaching for agriculture products, ecological sanitation and composting of waste products.

Research shows that the result of use of urine gives agriculture production four times more than use of chemical fertilizer (imported urea in Nepal). The experience tells that each VDC of Nepal is spending money about USD 5800 (i.e. in average 10 kg/HH x USD 0.58 = USD 5.8 x 1000 HHs = USD 5800.) to buy chemical fertiliser. If we calculate this figure for 3915 VDCs, the amount will be USD. 22760000. If we save this money by promoting ecological sanitation and organic fertilizer it helps to reduce poverty in Nepal.

3. Objectives

RWSSP-WN was designed to improve wellbeing of the poorest and excluded households⁶. 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.

The Executing Agencies of the project are the Ministry of Local Development (MLD) and its Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR), together with participating District Development Committees (DDCs) and Village Development Committees (VDCs).

4. Methods

4.1 Ignition and triggering techniques

Community Led Total Behavior Change in Hygiene and Sanitation (CLTBCHS) approach has been implemented in 54 Village Development Committees (VDCs) of 9 districts in Western Nepal. In this approach local organizations are encouraged and local people are trained to ignite and trigger people at household level to stop open defecation and negotiation for change their following five key hygienic behaviors; (1) Hand washing with soap or cleaning agent at four critical times, (2) Safe disposal and management of feces (promoting also ecological sanitation and organic fertilizer), (3) Safe handling, storage and treatment of household drinking water, (4) Personal hygiene i.e. regular nail cutting, bathing, clothes washing, daily combing, tooth brushing, (5) Proper solid and liquid waste management in and out of home.

³ *Medium Term Strategic Plan 2012-2016, WSSCC, Geneva, Switzerland*

⁴ *MPPW, DWSS, NMIP data 2010, Nepal*

⁵ *Sanitation and Hygiene Master Plan, 2010-2017, Nepal*

⁶ *Project document, RWSSP-WN, Nepal 2008-2012*

4.2 What is CLTBCHS?

Community-Led Total Behavior Change in Hygiene and Sanitation (CLTBCHS) focuses on igniting a change in sanitation behavior rather than constructing toilets⁷. 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 behaviors. 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 (NLs) 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-up⁸. CLTBCHS encourages the community to take responsibility and to take its own actions to practice the above key hygiene behaviors.

The process outlines 5 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 adoption and innovation are encouraged⁹.

4.3 The sequence of steps

Step 1: Consensus Building

First step involves a broad consensus building among the stakeholders for a joint commitment and resolution at district and VDC level for effective planning and implementation for district/VDC wide WASH promotion program.

Step 2: Institutional Building

The second step requires forming and reforming sanitation and hygiene coordination committees at the district, municipality and VDC levels in line with Sanitation and Hygiene Master Plan. An effective district WASH unit in each nine working districts have been established with GESI responsive human resources and logistic support. RWSSP-WN provides technical backstopping to the district WASH units.

Step 3: Planning and Programming

A series of sensitization and planning workshops and meetings conducts at the district and municipal / VDC levels and district / municipality / VDC level and WASH strategic plans developed. Such strategic plan will clearly spell out the program for the ODF and behaviour change target, including financial resources, facilitators, support agencies, roles and responsibilities, planning, implementation, monitoring arrangements.

The District WASH Coordination Committee (DWASHCC) provides technical support to the districts for capacity building in planning, implementation and monitoring. Each DDC, municipality and VDC allocate their own development budget for hygiene and sanitation promotion in addition to the funds received from central government, internal revenue and donor agencies. The district,

⁷ *Training in Community-led Total Behavior Change in Hygiene and Sanitation, (The Amhara Experience in Line with the Health Extension Program, Amhara National Regional State Health Bureau, Ethiopia)*

⁹ *CLTS Handbook, Dr. kamal Kar*

⁹ *PHAST, WHO 1997*

municipality and VDC level strategic plan formally endorsed by the DDC, Municipality and VDC councils respectively as their annual development program.

Step 4: ODF and Behaviour Change Campaigning

In this step, community mobilisation and sensitisation 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 mobilisation 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/ municipality 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.

Step 5: Post ODF Campaigning and Behaviour Change (Total Sanitation)

Step five would be the consolidation phase of sanitation coverage and behaviour built up for ODF sustainability. During this step under the leadership of the DWASHCC, MWASHCC and VWASHCC the institutions, schools, communities and VDCs/ municipalities would continue to monitor the ODF status in their respective areas. In addition, toilets will be upgraded and hygiene behaviour activities such as hand washing with soap at critical times and water and food hygiene are maintained, waste management will be undertaken, households and environmental sanitation is further enhanced by attaining the status of a 'clean and healthy village' and ultimately 'Total Sanitised Community/ VDC/ Municipality' is declared. To sustain behaviour, refreshers trainings, exposure visits, networking, documentation and publicity, and sensitization activities will be held from time to time. District also support to implement and monitor the program activities at VDC and Municipality levels.

5. Strategy to introduce Ecological Sanitation in RWSSP-WN working districts in Nepal

The most common ecological sanitation use in Nepal are biogas-toilets (presently human waste is not included), Urine Diversion Dry Toilets (UDDT) and Urine Diversion Wet Toilet (UDWT). There is little debate on the last one if it is really ecological sanitation as the management of faeces has not been included into the system yet¹⁰.

5.1 Use of Faeces and Urine

Ecological toilet offers an option for people, who invest for chemical fertilizers in food production. It is also an option where water scarcity limits the use of flush toilets, in this case the UDDT is the best solution. In Nepal the handling of human faeces is a taboo and it is difficult to convince people that human faeces can be handled safely once it is properly composted. However, by product of bio- gas, the slurry including human shit has been greatly use as organic fertiliser in Nepal. Urine is understood traditionally as having "healing" powers. Animal urine is used in religious performances and urine is not "taboo".

5.2 Important strategic points when introducing ecological sanitation in RWSSP-WN districts

5.2.1 Mass gathering in festival in promoting ecological sanitation

Urine collection iduring mass gathering in festival and exhibition gives awareness in a wider group. The urine collection in mass gathering in kapilvastu and Myagdi districts has been found very successful promotion method.

¹⁰ Strategy to introduce ecological sanitation in RWSSP-WN working area in Nepal, Arto Suominen, 2010

5.2.2 Urine diversion toilets

Urine Diversion Dry Toilet. In this case also faeces will be collected, composted and used. Most of the ecosan toilets constructed in Dana VDC of Myagdi, Mahendrakot VDC of Kapilvastu and Samung Deurali VDC of Tanahun district of Nepal are urine diversion dry toilets.

5.2.3 Linking

The Ecosan promotion in the districts has been closely linked with the ongoing activities of income generation and livelihood promotion. The most prominent group of Ecosan and bio gas users are the Lead Mothers and Mothers Group Members. There are 120 trained lead mothers in Dana VDC of Myagdi, Mahendrakot VDC of Kapilvastu and Samung Deurali VDC of Tanahun district of Nepal, These mothers are affiliated in the local mothers group. Also there is income generation linkage mechanism established to district level institutions. These institutions together with the District WASH Unit provide financial and technical support in income generation trainings which includes also promoting ecological sanitation and organic fertiliser .

5.2.4 Using the new tools and technologies

In this approach, communities themselves are taking the lead in changing their behaviours in hygiene and sanitation. After the ignition and triggering the community people of Dana VDC of Myagdi, Mahendrakot VDC of Kapilvastu and Samung Deurali VDC of Tanahun district became ignited, firstly to stop open defecation by building their toilets and promoting ecological sanitation and secondly to change behaviour in hygiene and sanitation.

6. Process of change



Photo1: Triggering to stop OD Photo2: Sanitation mapping Photo3: Started to cover over shit

6.1 Triggering Process

Triggering process starts from Multistakeholders forum meeting at district and VDCs. Together with the Lead Facilitators and sanitation triggers, triggering action conducted in community/cluster level with the support from the community level Hygiene and Sanitation Action committees¹¹.

The triggering tools include, for example, sensitisation workshop at district and VDC level. Once community people are sensitised, demand came from the people to support them in promoting ecological sanitation. VDC WASH Coordination committee with the support of district WASH unit identified the appropriate design of ecosan toilet. They visited the market to choose the design and

¹¹ Model District WASH Implementation Manual (2009) MLD/DOLLIDAR, Rural Water Supply and Sanitation Project, Western Nepal

arranged linkage to the interested individuals. This sensitisation and triggering makes people ignited and they want to use their urine and shit as organic fertiliser and change their behaviour

6.2 Technological options



Photo 4: Technology options for toilet

7. Results and Discussion

7.1 Major Achievements

Altogether 46,490 households (permanent 74% and temporary 26%) have built the toilets with the support of RWSSP-WN until March 2012. Accordingly, the 275,964 population have access to toilet facilities. The sanitation service coverage has been increased from 42% baseline value to 83% by the end of March 2012. There is a net value addition of 41% of the programme intervention.

Figure 1: National Status, NMIP and RWSSP-WN

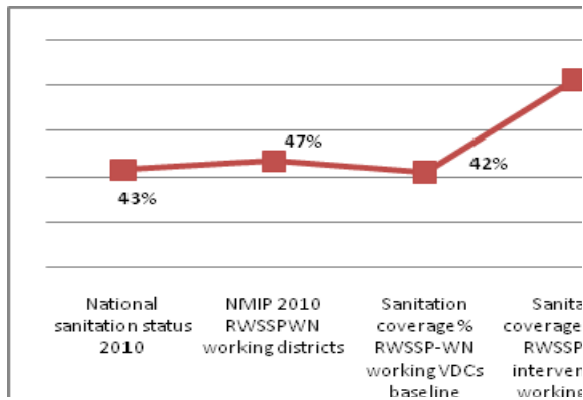
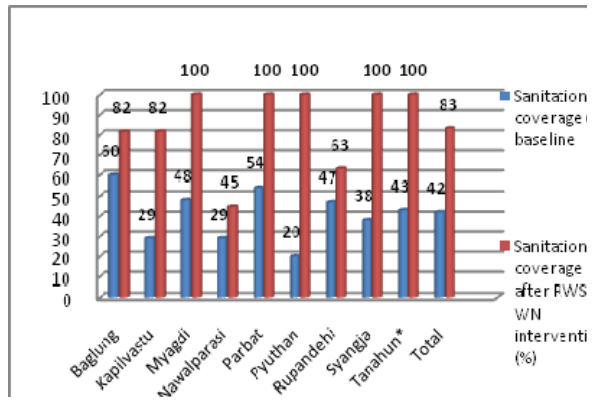


Figure 2: Before and After Interventions in Programme VDCs



In addition to the 54 programme VDCs, the sanitation programme of RWSSP-WN is widely replicated in 152 VDCs of the programme Districts. Hence, the achievement of this component is 172%. Until March 2012, 94 VDCs of the programme Districts consisting of 40 programme VDCs and 54 programme replicated VDCs, have declared ODF.

7.3 VDCs and Small Doable Actions (SDAs) in Hygiene and Sanitation

Altogether 46,490 households of 40 programme VDCs in the nine programme Districts have started small doable actions serving 275,964 people. Refer [Table-1](#) for the current cumulative status of the ODF VDCs and SDA of the nine programme Districts in detail.

Table 1: VDCs, ODF and SDA

Sn	Name of District	No. of Programme VDCs declared ODF	No. of additional VDCs declared ODF	No. of VDCs ready for ODF	No. of HHs started SDA	Total population served
1	Baglung	5	6	0	4,688	28,603
2	Kapilvastu	4	0	2	5,002	30,662
3	Myagdi	6	25	10	4,215	23,186
4	Nawalparasi	1	0	1	1,681	10,304
5	Parbat	6	6	9	3,363	20,186
6	Pyuthan	6	3	17	5,065	31,328
7	Rupandehi	0	0	1	8,783	50,091
8	Syangja	7	14	10	6,748	46,703
9	Tanahun	5	0	0	6,945	34,901
	Total	40	54	50	46,490	275,964

The difference brought by the intervention is clearly seen from the baseline coverage (42%) to the current coverage (83%). [Table 2](#) shows the VDC's sanitation status after the RWSSP-WN intervention.

Table 2: Programme VDCs Status after RWSSP-WN Intervention

S N	Districts	No Of VDCs	Total HHs	No. of HHs having toilet before triggering (baseline)	Sanitation coverage (%) baseline	No. of HHs having toilet after triggering	Sanitation coverage after RWSSP -WN intervention (%)
1	Baglung	6	5,749	3,472	60	4,688	81.54
2	Kapilvastu	6	6127	1,758	29	5,002	81.64
3	Myagdi	6	4,215	2,040	48	4,215	100.00
4	Nawalparasi	3+2	3,760	1,083	29	1,681	44.71
5	Parbat	6	3,363	1,805	54	3,363	100.00
6	Pyuthan	6	5,065	989	20	5,065	100.00
7	Rupandehi	5	13,921	6,554	47	8,783	63.09
8	Syangja	7	6,748	2,556	38	6,748	100.00
9	Tanahun*	6	6,945	3,013	43	6,945	100.00
	Total	51+2	55,893	23,270	42	46,490	83.18
	% in total HHs		100%	42%	42%	83%	83%

7.4 Institutional Toilets

Altogether, the DDCs have built 159 institutional toilets as of March 2012. This has benefited 25,750 people. Refer **Table 3** for details.

Table 3: Nos. of Institutional Toilets and Beneficiaries

Name of District	Total Inst. Toilet (Cum.)	Benefited Populations		
		Female	Male	Total
Total	159	12,845	12,905	25,750
	%	50%	50%	100%

7.5 Promoting Ecological Sanitation and Organic Fertiliser

Promoting the ecological sanitation and utilizing the human urine in the field crops, better production was observed which enabled productive food security. The woman below, Rupa sunar of Mahendrakot VDC, Kapilvastu has been using the urine in her kitchen garden and she has been sustaining her livelihood. Likewise, the man in the picture, Mr. Bal bahadur Thapa of same VDC, has been able to make a profit of about USD 580 per year utilizing the "shit" and "urine" in his kitchen garden and producing fresh fruits and vegetables like tomatoes, papaya, cauliflower, cabbage and many more which he has been using to educate his daughter in bachelors' and son in masters' degree in Tribhuvan University, Nepal. These are just examples, several people from two other districts too, including Tanahu and Myagdi have also started utilizing their shit and urine. Self-help groups at community level encourages the people in saving and credit system that also promote ecological sanitation¹².



Photo 4 : Eco toilet of Rupa Sunar Photo 5: Papaya using urine Photo 6: Vegetable farming

7.6 Energy saving by using human shit and producing bio gas

The "human shit" has always been beneficial energy saving source. After triggering by applying CLTBCHS approach, the picture below shows a woman and man of Mahendrakot and Kopuwa VDC of Kapilvastu who constructed their bio gas toilet by their own and utilised the human shit and used it as the biogas production, especially for cooking purpose, making a profit of about USD 17.50 per month. This trend is also continued in other districts too which include Myagdi and Tanahu.



Photo 7: Bio gas-use of human shit

¹² Self –Help Group Manual, 1998: A work Manual about Saving and Credit, Chhabi Goudel, Nepal

8. Conclusions:

As a result, it is assumed that the hygiene & sanitation situation and food security and energy saving within the project working area has greatly improved resulting into a reduction in morbidity and mortality of hygiene and sanitation related diseases and the economic cost (USD 8 000 000) of hygiene and sanitation-related diseases per year . One example, Mr. Bal Bahadur Thapa of Mahendrakot VDC of Kapilvastu district has been able to make a profit of about USD.580 per year utilizing the "shit" and "urine" in his kitchen garden and many more which he has been using to educate his daughter in bachelors' and son in masters' degree in Tribhuvan University, Nepal.

9. Major Challenges

Difficulties imposed by poverty, landlessness and inadequate water supply, was talked about among the triggerers in a manner that was considerably more animated and expressed frustration¹³.

- Construction gets difficult due to heavy rainfall and floods during the project.
- At the end of the project, meet the increasing demands of Eco toilet.
- Selection of beneficiaries (frequently mind changed).
- High construction cost/cost sharing/contribution collection.
- Negative attitudes towards eco-toilets, as the technology not known in these areas.
- Ensuring optimum use of urine in agriculture.
- Marketing of urine and eco-compost.

10. Lesson learnt

- Particularly the people in remote areas are more interested in constructing a stone, cement block and brick-made superstructure.
- Freedom for choosing toilet options makes them proactive and creates ownership as well.
- Critical awareness is important to mobilize all stakeholders for eco-toilets.
- More time is required to change people's attitudes and behaviour toward the eco-toilet. But they are reluctant to go back to traditional toilets, once they are habituated.
- Sanitation link with income generating activities.

Training and effective mobilisation of Lead Facilitators (TBC in hygiene and sanitation) at district level has been successful in nine districts of Western Nepal. The strategy adopted by RWSSP-WN to train the Lead Facilitators and village level sanitation triggers with the help of training manual and resource book¹⁴ is the key to achieve the above mentioned result in short period of time.

The lesson learnt from this approach can be replicated in other districts aiming to overcome from the 43% sanitation coverage and to promote ecological sanitation in Nepal.

¹³ Fiona Budge 2010, Master thesis submitted to University of Amsterdam,

¹⁴ Lead Total Behavior Change (TBC in hygiene and sanitation) Facilitators Training Manual and Resource book, RWSSP-WN 2010, Goudel Chhabi

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