

Research Article

Factors Contributing to Management of Open-Defecation-Free Movement of Sanitation in Mahottari District in Nepal

*Devendra Kumar Jha*¹, *Tulika Jha*²

¹Chief, Sewerage Management & Environmental Sanitation Section, DWSSM and Member Secretary at National Sanitation and Hygiene Co-ordination Committee, Nepal.

²Advocate, Dejure Law Firm, Anamnagar, Kathmandu, Nepal.

I N F O

Corresponding Author:

Tulika Jha, Dejure Law Firm, Anamnagar, Kathmandu, Nepal.

E-mail Id:

tulika.97@gmail.com

Orcid Id:

<https://orcid.org/0000-0001-7376-6531>

How to cite this article:

Jha DK, Jha T. Factors Contributing to Management of Open-Defecation-Free Movement of Sanitation in Mahottari District in Nepal. *J Adv Res Busi Law Tech Mgmt* 2019; 2(1): 21-35.

Date of Submission: 2019-03-27

Date of Acceptance: 2019-04-11

A B S T R A C T

Annually, a huge amount of money is being spent in sanitation sector in Nepal by both government and non-governmental organizations and many places have been declared Open Defecation Free (ODF) zone. A sum of NRs 300 million was spent for sanitation by Department of Water Supply and Sewerage only. Similarly, there are other agencies pouring massive amount in this sector in pursuit of declaring ODF zone. It is difficult to maintain the status for a long term. There is evidence that the declared ODF zones slip back to open defecation as the time passes by. This has generated a big question on sustaining the status within the area, putting immense pressure on exploring the factors that govern towards achieving and maintaining the status. Therefore, in this context, the study was carried out to assess the factors responsible for achieving and maintaining the status of Mahottari district of Nepal. Household surveys and key informants with the local implementers and the personnel associated with the implementation were interviewed to identify the aforementioned factors that work in favor and against the open defecation status. The study has identified seven broad categories that either push or pull the communities in achieving ODF status. Out of many factors, the commitment, coordination and communication trigger the community to declare ODF zone whereas pulls the community away from it. It was found out that the communities of Mahottari district have developed a social code of conduct including award and penalties to maintain the status of ODF zone.

Keywords: Factors, Implementation, Open Defecation Free, Movement

Introduction

Sanitation is considered as a milestone for public health, development and prestige. Sanitation facility is the fundamental right of every citizen, which is an equipment and system that keeps places clean, especially by removing human waste. Sanitation comes from the Latin word

sanitas meaning health.¹ Around the world, poor sanitation remains a major threat to development, impacting the country's progress in health, education, and gender equality, and social and economic development. Since sanitation links with health, education, and poverty, it is an important contributor to the achievement goal 7 of the Millennium Development Goals (MDGs) that states "Ensure

environmental sustainability by halve the population of households without sustainable access and safe drinking water and basic sanitation by 2015". Nepal had targeted to achieve water supply coverage of 73% and sanitation coverage of 53% then at par with MDGs-Goal 7, which are already surpassed by the coverage of water and sanitation within Nepal.¹²

Globally, 2.5 billion people, including 840 million children, do not use improved sanitation. 1.2 billion (almost one-fifth of the world's population) practice open defecation in rural areas; this is the case of 1 in 3 people.²⁰ In Nepal, sanitation promotion was prioritized only after the declaration of Sanitation Decade in 1981 by the United Nations. During the early days, only 6% of the total households present in 1990 had toilet facility that gradually increased in the subsequent years. The figure of 62% of coverage is quoted officially.² Currently, the country's sanitation coverage has increased notably within the period of five years (2011–2015) after the enforcement of the Sanitation and Hygiene Master Plan (SHMP) and massive expansion of ODF campaign.¹⁴ The current sanitation coverage in Nepal is 70.28%¹² which have access to latrine/ sanitation. The situation of water supply has deteriorated in post-earthquake scenario.¹⁵ Risk of water supply has been identified by Mishra.¹⁶ Contractor human resource capacity is there¹⁷ but value management is not in practice.¹⁸ Management transfer is also not up to the mark.¹³

A nationwide movement for Open Defecation Free (ODF) is going on in line with Sanitation and Hygiene Master Plan, 2011. At present the data produced by Environmental Sanitation Section (ESS) of the Department of Water Supply and Sewerage (DWSS) shows that two zones, 38 districts, 116 municipalities and more than 2175 VDCs have been declared ODF zones (ESS/DWSS, 2016) with increasing trend of ODF declaration of the last five years. ODF movement is guided by the principle of community-wide total sanitation led by local bodies with flexibility in approach and technologies. Continuity of ODF and its advancement towards total sanitation depends on several factors like: motivation, financial, technical, institutional, and political.

Nepal National Sanitation Policy, 1994, defines sanitation as all activities which improve and sustain hygiene in order to raise the quality of life and the health of an individual. It includes proper methods of disposal of human excreta, personal hygiene, food hygiene, proper handling, storage and use of drinking water, proper solid and liquid waste disposal and proper animal waste disposal as the key aspects of sanitation. The Urban Water Supply and Sanitation Policy-2009, states that sanitation is the safe management of human excreta, including the hardware (latrines, etc.) and software (regulation, hygiene, promotion, etc.) needed to reduce fecal-oral disease transmission. Hence, hygiene

and sanitation are the interlinked entities for public health and environmental sustainability.

Within one municipality and 76 VDCs of Mahottari district, the total number of population benefitted from water supply is 542, 652 (81.48% of the total population) and the total number of households benefitted from sanitation is 56 (100% of the total households (WSSDO, 2016). With this coverage, Mahottari district stands at 38th position among all the districts in water and sanitation coverage within Nepal.

The overall objective of the research is to find out factors influencing ODF achievement and how it is maintained in Mahottari District.

Literature Review

Water, Sanitation and Hygiene (WASH)

Poor sanitation remains a major threat to development, impacting country's progress in health, education, gender equity and social and economic development. Poor sanitation and hygiene pose higher threat to women and children. Globally, 58.8 million deaths occurred, of which 27.7 million were females and 31.1 million males.²¹ This figure also substantiates that women are more vulnerable to poor sanitation. The two main causes of mortality among children under age five acute respiratory infection and diarrheal diseases are closely linked to poor WASH. Even the indicator of water supply management transfer is problematic based on Sunsari case study.¹³

The estimated 1.8 million people's death each year is because of diarrhea, of which 1.5 million are children. WHO²¹ concluded: (i) one in five deaths in the world was of children under the age of five years, and (ii) these deaths of children are more pronounced in less developed regions whereas in developed regions, poor sanitation is responsible for the deaths of old people. Girls and women are more vulnerable by poor sanitation and hygiene. Not only vulnerable but lack of safe and separate sanitation hinders girls from attending school and increases as well the likelihood of diseases during pregnancy. Human feces are the main source of diarrheal pathogens which cause gastrointestinal infection. One gram of human feces can contain 10 million viruses and 1 million bacteria.¹⁹ Sanitation and hand washing are the best barriers to fecal-oral communication while food handling, water purification and fly control provide secondary barriers. The elimination of open defecation is shown to have 36% reduction in diarrheal morbidity. Approximately 3.1% deaths (1.7 million) and 3.7% disability-adjusted-life-years (DALYs) (54.2 million) worldwide are attributable to unsafe water, sanitation, and hygiene. In Africa and developing countries in southeast Asia 4–8% of all diseases burden is attributed to these factors that occur in developing countries and 90% are deaths of children.²²

Sanitation is equipment and systems that places clean, especially by removing human waste. Sanitation comes from the Latin 'sanitas' meaning health.¹ The word 'hygiene' is derived from Hygeia, the goddess of human in Greek mythology. 'Hygiene is the practice of keeping oneself and one's surroundings clean, especially in order to prevent illnesses or the spread of diseases.'¹ Disposal of human feces, use and protection of water sources, water and personal hygiene, food hygiene and domestic and environmental hygiene are the five behavioral domains of hygiene and sanitation.¹⁰ In Hindu rituals, there is a saying that where there is cleanliness, there is abode of the gods. It is said that water is life, sanitation is dignity. It is obvious that there is no life without water. Sanitation is way of life; hygiene is the best of life. Sanitation is commonly understood as the access to toilet and cleanliness of households and yards. Post ODF declared zones, if maintained properly, will lead to total sanitation.

Total sanitation as defined in Sanitation and Hygiene Master Plan is a range of facilities and hygiene behaviors that lead to achieve sanitized condition of the designated areas (VDCs and municipalities including settlements, Toles, school's catchments, etc.).⁷ Total sanitation concentrates on ending open defecation as a first significant step to an entry point of changing behavior. The second step includes all arrangements leading to sustainable hygiene and sanitation behaviors.

Subsidy for construction of latrines was provided in the community either by the government or international donor agencies. The Department of Water Supply and Sewerage (DWSS) had once the provision of subsidy to those households that lack toilets (DWSS, 2007) and the rates were different for three geographic regions of the country which were as follows:

- Rs. 1500 for Himalayan Region
- Rs. 1200 for Hilly Region
- Rs. 1000 for Terai Region

Subsidies have forced people to construct the toilets at their households but in the meantime made people dependent on external sources for any sort of activities i.e., increased dependency and made the community lethargic. Even those who received subsidies did not use the amount wisely in some cases. After observing and feeling the negative impacts of subsidies, the Government of Nepal has removed the subsidy provision in the construction of toilets.

Status of Water, Sanitation and Hygiene in Nepal

The national level of water supply facility coverage as of 2014 is 83.59% whereas it was 80.4% in 2010. The data shows that water supply coverage could not increase noticeably. In case of sanitation, the coverage is 70.28% as of 2014 whereas it was 43.0% in 2010.¹² The data also shows that gap between the coverage of drinking water supply and sanitation at the national level is 13.31%, reflecting the negligence of sanitation and hygiene components in WASH sector. However, if both the coverage is seen on ecological basis, then hills have higher sanitation coverage than terai and mountain. Water supply coverage is almost equal in all the three ecological regions.¹² Incremental percentage of water supply coverage has progressed at a snail's pace in comparison to sanitation coverage in the same ecological zone. The data is shown in Table 1.

The pace of sanitation progress seemed phenomenal as compared to that of water supply coverage in the same period of time as shown in Table 1.

As per SHMP (2011), Mahottari District was in 38th position out of 75 districts in sanitation that represents poor sanitation condition in the district. The sanitation coverage has increased to 81.48% after the sanitation conference in the district. The total water supply and sanitation coverage in Mahottari district is shown in Table 2. Currently, the district lies in 31st position in sanitation coverage within Nepal.

Table 1. Status of Water, Sanitation and Hygiene (WASH) of Nepal 12

S.No.	Regions	Water Supply Coverage (in%)	Sanitation Supply Coverage (in%)
1	Eastern Development Region (EDR)	82.45	62.58
2	Central Development Region (CDR)	85.21	62.77
3	Western Development Region (WDR)	82.84	80.6
4	Mid-Western Development Region (MWDR)	80.92	86.29
5	Far-Western Development Region (FWDR)	84.64	78.19
	Ecological-wise		
1	Mountain	80.19	78.48
2	Hill	84.89	87.14
3	Terai	84.79	56.93
	Nepal	83.59	70.28

Table 2. Status of Water, Sanitation and Hygiene (WASH) of Mahottari District

S. No.	Fiscal year	Water supply (%)	Sanitation (%)
1	2064/065	63.65	16.92
2	2067/068	69.99	18.35
3	2068/069	71.00	32.45
4	2070/071	75.26	45.28
5	2072/073	81.48	60.00

(Source: DWSS, 2015).

Nationally, 42.2% have pit latrines, 53.9% have water seal toilets and 3.9% have other types of toilets (biogas, eco-san, etc.) in the country. About 1.8% of the households having toilet do not use them, these have been excluded from sanitation coverage figures. Of the households covered by a toilet in use, 8.8% have poorly managed their toilets that were hygienically satisfactory but with unmanaged superstructure and 11.8% have dirty, un-hygienic toilets.¹²

Millennium Development Goals

As per Goal 7 Ensure Environmental Sustainability, Halve by 2015, the proportion of the households without sustainable access and safe drinking water and basic sanitation, Nepal has achieved 83.59% coverage in water supply and 70.28% for sanitation. Nepal has successfully reached Millennium Development Goals in water supply as 73% and sanitation sector as 53% up to 2015 AD (Table 3).

Sustainable Development Goals (SDGs)

Sustainable Development Goals (SDGs) is the continuum of Millennium Development Goals, and was adopted by

climate change while ensuring that no one is left behind (UN, 2016). Of many goals, there are five goals which are directly or indirectly affected by sanitation: those goals are:

Goal 3: Ensure healthy lives and promote wellbeing for all at all ages.

Goal 6: Ensure access to water and sanitation for all.

Goal 8: Promote inclusive and sustainable economic growth, employment, and decent work for all.

Goal 11: Make cities inclusive, safe, resilient, and sustainable.

Goal 14: Conserve and sustainably use the oceans, seas, and marine resources.

Goal 6 that ensures access to water and sanitation for all is most directly influenced by improved sanitation. ODF is the first step towards achieving total sanitized city or community, that has multiplier effect on access to water and sanitation. Ensuring universal access to safe and affordable drinking water by 2030 requires investment in adequate infrastructure, provision of sanitation facilities, and hygiene at every level (UNDP, 2016).

Table 3. Water and Sanitation Trends and Targets

S. No.	Location	1990	2000	2005	2010	2011	2015 MDG target
Sanitation							
1	Urban	34	80	81	85	88	67
2	Rural	3	25	30	37	50	52
3	National	6	30	39	43	62	53
Water Supply							
1	Urban	90	86	93	94	94	95
2	Rural	43	71	79	78	88	72
3	National	46	73	81	80	89	73

(Source: NPC, 2011).

the world leaders in September 2015, which officially came into force from January 2016. SDGs are not legally binding; however; the governments are expected to take the ownership and establish national frameworks for achievement of the 17 goals, which were adopted to transform our world over a period of next 15 years. Under these goals, the countries will mobilize all their efforts to end all forms of poverty, fight inequalities, and tackle

Open Defecation Free (ODF) Situation

Open defecation (OD) means defecating in the open and leaving the feces exposed. ODF means 'Open Defecation Free', i.e., no feces are openly exposed to the air. The collection of feces in a direct pit with no lid is also a form of OD but with a fly-proof lid, it qualifies for ODF. The following indicators/criteria must be fulfilled for designating the area

ODF zone in Nepal:

- There is no open defecation in the designated area at any given time.
- All households have access to improved sanitation facilities (toilets) with full use, operation, and maintenance.
- All schools, institutions and offices within the designated areas have toilet facilities.

In addition, the following aspects should be encouraged along with ODF declaration process:

- Availability of soap and soap case for hand washing in all households; and
- General environmental cleanliness including management of animals, solid and liquid waste is prevalent in the designated area.

Process of ODF Declaration

Sanitation and Hygiene Master Plan, 2011, speaks about the procedural requirement for the declaration of ODF zone. The criteria as prescribed by SHMP 2011 are presented in the previous section, which speaks of the procedural requirement for the ODF zone declaration. After meeting all the pre-requisites and prior to ODF declaration, endorsement from the respective higher governing level is a must.⁷ For example:

- For declaring a Village Development Committee (VDC), as per decision and request of the VDC level Water Supply, Sanitation and Hygiene Co-ordination Committee (V-WASH-CC), District Water Supply, Sanitation and Hygiene Co-ordination Committee

(D-WASH-CC) manage to monitor the situation of the VDC against the above set conditions. If the conditions are found to be fulfilled, endorsement is made to declare VDC ODF.

- For declaring a municipality as per decision and request of the municipality-level Water Supply, Sanitation and Hygiene Co-ordination Committee (M-WASH-CC), District Water supply, Sanitation and Hygiene Co-ordination Committee (D-WASH-CC) manage to monitor the situation of the municipality against the above conditions. If the conditions are found to be fulfilled, endorsement is made to declare the municipality ODF.
- For declaring a district as per decision and request of the district-level Water Supply, Sanitation and Hygiene Co-ordination Committee (D-WASH-CC), Regional Water supply, Sanitation and Hygiene Co-ordination Committee (R-WASH-CC) manage to monitor the situation of the municipality against the above conditions. If the conditions are found to be fulfilled, endorsement is made to declare the district ODF.

Factors Influencing Open Defecation Free

Various factors have been identified that influence the community to declare ODF and also to maintain ODF status in a long run. The ultimate goal of the ODF declaration is to achieve total sanitation (Fig. 1) in the area, for which maintaining the status of ODF is very essential.

A study conducted in East Java, has assessed the following factors associated with achieving and sustaining ODF communities. The study has categorized various factors that work in favor of ODF declaration and those factors that work against ODF declaration (Table 4).



Figure 1. Open Defecation Leading to Total Sanitation

(Source: Pandey, 2015)

Table 4. Factors Associated with Achievement of ODF Outcomes

Factors Working against			Factors Working in Favor
Outcome Unreached; No Increase in Access	ODF Unreached; Some Increase In Access	ODF Delayed 7–12 Months Post-Trigging	ODF Achieved Quickly, Within 2 Months Post-Trigging
1) Community location next to water bodies into which prefer to defecate.	1) Poor-quality CLTS trigging: trigging only selective groups, no CLTS tools used or used incorrectly, facilities advice latrine building during trigging.	1) Community leader not involved in trigging	1) High social capital; trusted leader go tong rayon (mutual self-help tradition): pride in collective achievement

2) Community location in remote swamp areas lacking transportation access	2) Previously received external subsidies and/or high exportation of further subsidies	2) Lower-quality CLTS process: two or fewer CLTS tools used and/or used incorrectly factitious discussed latrine building subsidy, and sanitation credit during triggering.	2) Triggering in response to demand for it from community leader
3) Very poor quality CLTS process; no CLTS tools used incorrectly; only leader or only the latrine-less invited for triggering; facilitators exhorted everyone to build latrine.	3) Lack of post-triggering progress monitoring by external agent or the communities themselves	3) Less go tong beyond	3) High quality CLTS triggering: gender-and-socially inclusive process: proper use of three or more CLTS tools; triggering delinked from advice on latrine building
4) Low social capital; leaders not trusted; conflicts between hamlets: lack of collective action traditions	4) Lack of community awareness of lower-cost options for the smell-free, pour-flush systems that consumers prefer the most, but often believe to be unaffordable	4) Reluctance to accept low-cost, dry-pit salutation	4) No history of a few households receiving externally provide household sanitation subsidies.
5) Community leaders did not buy into the idea of ODF community and subsidy-less approaches.		5) Reliance on show financing mechanism like project which are open to misuse by influential community members.	5) Access to information about affordable sanitation products having attributes that consumers are willing to pay for, e.g., smell-free, faces not available.
6) Little or no post-triggering monitoring by outsider or by the community itself		6) Community progress monitoring focused on construction rather than behavior change	6) Access to latrine supplies at easier payment terms through bulk order or installment negotiated by community leader
			7) Regular community monitoring of both behavior change and construction, with enforcement of sanitation against open defecation

Proper post-ODF declaration monitoring is necessary as many of the toilets or households could slip back to open defecation due to lack of proper maintenance of the toilets. The problems could be related to wither technology or behavioral changes. One of the key findings of Water and Sanitation Program Indonesia Action Research Report is that “once verified communities declared as ODF are not being re-checked by local government agencies for sustainability of behavior change”.¹¹ The factors that work either for sustaining or non-sustaining ODF from the East

Java Learning are as follows:

Factors working against sustainability of ODF outcome:

- Absence of behavior and access monitoring ODF declaration, by both community and external agency
- Very low-cost and no-cost solution chosen by households or community leaders to become ODF, some of which did not endure and were not repaired or replaced
- Lack of information available in communities about low-

cost and progressive upgradable improved sanitation options

- Sharing arrangement breaking down, or sharers continuing with open defecation along with sharing other's latrines

Factors working for sustainability of ODF outcome:

- Continued behavior monitoring by both community and external agency after ODF declaration
- Functioning community-devised system for detection and sanctioning of open defecators
- Households enabled (by communities themselves) to acquire low-cost, but somewhat durable sanitation solution in the drive to become ODF

East Java learning concluded that quickly ODF declared areas/communities are efficient models as they achieved faster and higher access gains and remained ODF more often than other communities that took longer periods for the declaration. These two communities significantly differ in the proximity of water resources though other factors such as topography, market place, soil types do not differ significantly. Community's situation near the riverbank, beach or lakeshore had the lowest access to sanitation and less likely to achieve ODF status.

It is generally understood that cultural factors, i.e., preferences, values, beliefs, habits, perceptions and attitudes are determinants. Natural factors are also additional resisting the effects of intervention. For example,

their access to land, even not in their ownership, has provided lots of opportunities for open defecation, which had an important role in maintaining their cultural life, privacy and safety. Majority of people still use naturally available materials, such as stones, corn bark, leaves of bushes for cleaning. It can be said that the construction of latrines and hand pumps – stand alone, could not be the effective ways about bringing the changes in the hygiene and sanitation behaviors, cultural beliefs, and ideas were major factors making people build or shun toilets. Local situation tells us that none of them was found giving importance to understanding of people's beliefs and perception affecting deeply the hygiene and sanitation situation of the communities rather seemed negligible. Inadequate food supply situation and poverty were other contributing factors to their existing poor hygiene and sanitation condition. The reasons behind these situations are the low sensitivities of most of the policy makers, planners towards the local cultural basics and project designers and implementers. Technocratic perspectives have been emphasized only at installing physical structure of latrine construction. They have ignored and often bypassed socio-cultural issues. They have not given importance and often overlooked attitudes and perceptions of people are not addressed even they all come into play (Justice, 1989). This problem is seen in the eight Terai districts of Nepal (Saaptari, Sirha, Dhanusha, Mahottari, Sarlahi, Rauthat, Bara, Parsa). As per the NMIP data of DWSS 2015, only 42% access to toilet which is not fulfill the millennium Development goal.

Table 5. Category Definition and sampling Rationale

	Definition	Sampling Rationale
Quickly ODF	Self-declared ODF within two months of CLTS triggering even if verified at a later date.	Communities would represent the best-case scenario, whereby factor influencing collective behavior change positively could best be studied.
Late ODF	Self-declared ODF during 7–12 months of triggering, ever if verified at a data	Communities would show factors that tend to inhibit collective change and delay ODF outcome.
Not ODF (high coverage)	Failed to become ODF even one year after high sanitation coverage, i.e., over 80% of households.	Communities would illustrate situations where change starts but fails to proceed to full ODF achievement.
Not ODF (low coverage)	Failed to become ODF even one year after triggering, and have low sanitation coverage, i.e., less than 50% of households	Communities would show sanitation where the collective change process fails to take off.

Table 6. Rate and Change in Access to Improved Sanitation by Category¹¹

	Average time to become ODF	Average time since triggering	Increasing in % households gaining access	Additional households gaining access	Additional persons gaining access
Quickly ODF	57 days	N/A	52→97	1916	7016
Late ODF	230 days	N/A	63→100	1160	3878
Not ODF (high coverage)	N/A	555 days	67→88	1341	5034
Not ODF (low coverage)	N/A	534 days	28→36	313	1112
Total				4727	17,040

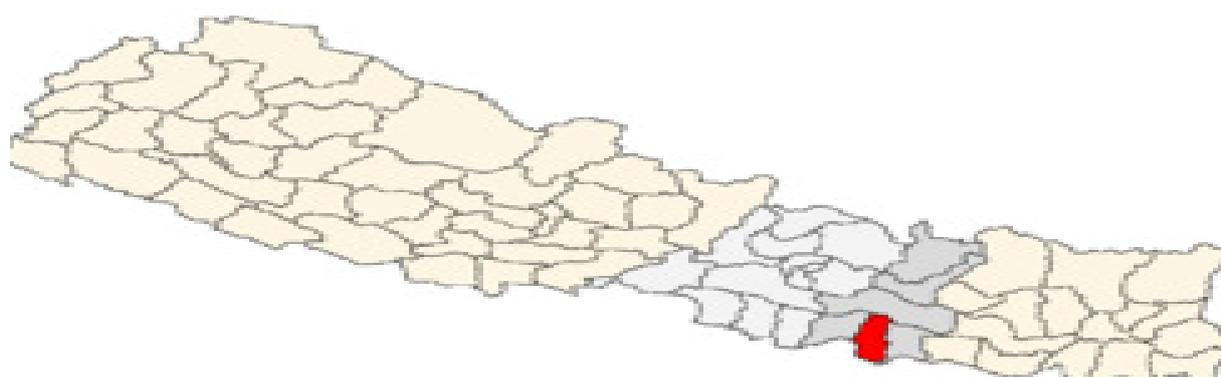
- As per factors associated with achieving and sustain open defecation-free communities: Learning from East Java:
- High Social Capital: trusted leaders: Mutual self-help traditions: pride in collective achievement
- Triggering in response to demand for it from community leaders
- High-quality CLTS triggering: gender and socially inclusive process, proper use of three or triggering tools: triggering delinked from advice on latrine building
- No history of a few households receiving externally provided household sanitation subsidies
- Access to information about affordable sanitation products having attributes that consumers are willing to pay, e.g., smell-free faces not visible, easy to clean, modern.
- Access to latrine supplies at easier payment terms through bulk orders or installments negotiated by community leaders.
- Regular community monitoring of both behavior change and construction with enforcement of sanctions against open defecation.
- Triggering through dignity, pride and prestige
- Triggering on a bigger scale
- Sanitation and hygiene coordination structures: getting all stockholders on board
 - Policy and common vision
 - Alignment and support
 - Joint planning, coordination, and action
- Celebration, recognition, and competition
- Leaders following leaders
- Leverage of local budgets
- Local support to reach total coverage

Study Area

Mahottari district, a part of Province No. 2, is one of the 75 districts of Nepal. The district, with Jaleshwar as its district headquarter, covers an area of 1002 km² and had a population of 553,481 in 2001 and 627,580 in 2011.² Its headquarter is located in Jaleshwar, a neighboring town of the historical city of Janakpur. the name Jaleshwar means the ‘God in Water’. One can find a famous temple of Lord Shiva in water there. Jaleshwar lies at a few kilometers from the Nepal-India border and has a majority of Maithili population in Janakpur zone. It was initiated for ODF on 2072/2/11 under hope of D-WASH-CC with a slogan ‘Mahotari habitats responsibility to have all VDC and municipality free from open defecation.’

As per Lessons from Nepal’s Sanitation Social Movement UNICEF (October-2014):

- No single ingredient ,no single recipe
- No subsidies



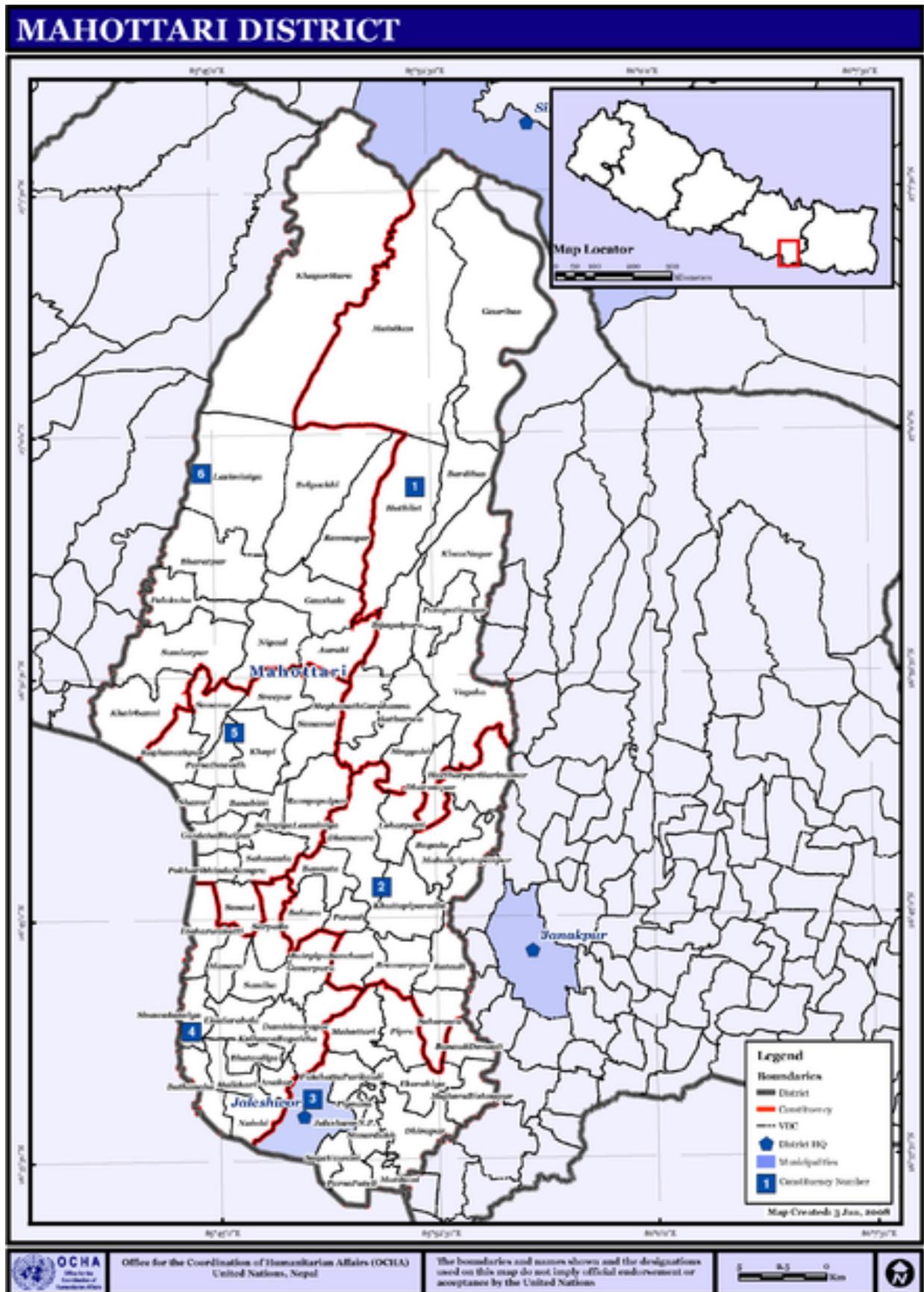


Figure 2. Selected VDCs of Mahottari District for Study Purpose

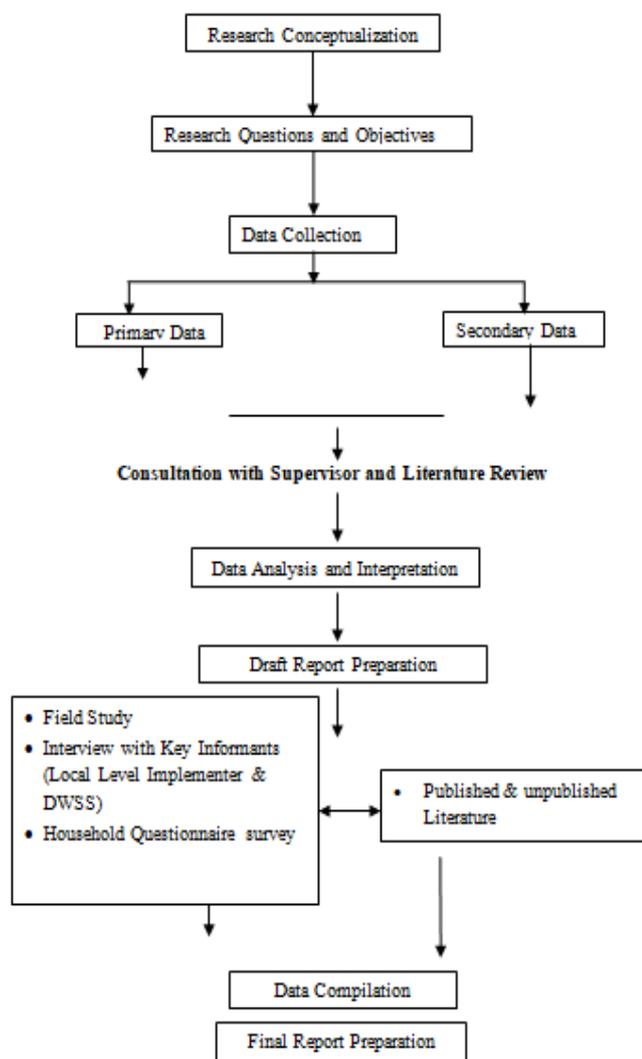


Figure 3. Research Framework

Research Design

The entire research was divided into small steps and various activities were carried out to meet the general objective of the study. The steps adopted for the study are shown in Fig. 3. The research was conceptualized at the beginning which was ended setting up the broad research question and objective. Then the specific research questions and objectives were formulated followed by data collection (both primary and secondary data) through various data collection tools. The data were analyzed and final thesis was prepared. The literature review and consultation with supervisor were done continuously throughout the research period.

Research Approach

The approach adopted in this study was qualitative based on observation, document studies, and interviews taken from real field. A series of interviews with key informants were conducted; a few informal interviews and focus group discussions were also conducted. The questionnaire survey

was also conducted among the selected households of the four VDCs of Mahottari District.

Method of Data Collection

Relevant primary and secondary data were collected for which a set of data collection tools were adopted. The primary data was collected through questionnaire survey, key informant interviews, informal meetings, and focus group discussions, and field observation, whereas literature review was done for the secondary data.

Key Informant Interviews

Interviews with local-level implementers and the DWSS were conducted to collect the information required for the study with the help of a checklist (Annex. 2). A total of 16 key informant interviews (name list provided in Annex. 2) were conducted. The main objective of interviewing these persons was to assess the factors that triggered and maintained ODF status in the VDCs

Households Questionnaire Survey

A household questionnaire survey was conducted amongst the selected households of the four VDCs with the help of a pre-administered set of questionnaires. The main objective of household survey is to assess the condition of the existing toilets that could help to ascertain the sustainability of the household's toilets. Physical observation of the toilets was also done simultaneously with the household survey. The total number of households to be surveyed was determined.

Data Analysis

The study tried to assess the factors associated with achievement of ODF zones; the factors obtained from the study were clumped together under various categories, such as core problems, factors responsible during planning and designing, etc.

Results and Discussion

Factors Associated with Achievement of ODF Outcomes

Various factors are found to be working in Mahottari district, which are either influencing or acting as hindrance towards achieving ODF zone. Most of the factors are influencing the district towards achieving ODF; the factors are grouped according to the activities and enlisted in Table 8. All the factors are grouped into seven broad categories, such as, (i) Identification of core problems, (ii) Planning and monitoring, (iii) Commitment, coordination, and communication, (iv) Resources allocation, (v) Capacity building and development, (vi) Roles and responsibilities, (vii) Ignition and triggering tools. The factors that drive towards the achievements of ODF are considered as push factors whereas those factors that come as hindrance from achieving ODF status are considered as pull factors.

Table 7. Research Matrix

S. No.	Objective	Data Collection Tools	Data Source	Analysis Method
1	To find out the factors influencing ODF achievement and how it is maintained at Mahottari district	Questionnaire, interview with local implementer like D/M/V-WASH-CC, members and literature review	Household-level, local implementer like D/M/V-WASH-CC, WSSSDO and other stakeholders	Descriptive & analytical qualitative analysis. Relation of time and its sustainability comparative subsidy and zero subsidy.

Table 8. Push and Pull Factors for Mahottari District in Achieving ODF Status

S. No.	Push Factors	Pull Factors
A	Identification of Core Problems	
	Communities recognize ODF as an issue of dignity, pride, prestige, identity.	Existing subsidies policies.
	Common agenda of key stakeholders (e.g., political parties, media, FEDWASUN, Red Cross, Government offices (GOs) and non-government offices (NGOs))	Traditional norms and beliefs
	Cultural factors	
B	Planning & Monitoring	
	Development of strategic action plan through active participation of stakeholders	Remote and difficult geography terrain & location.
	Independent monitoring and evaluation system through J-WASH-CC (media)	Short period of ODF declaration of the district
	Sanitation conference: Commitment for the ODF declaration by different stakeholders	Earthquake
	Establishment of D/V/W-WASH-CC secretariat	
	Solid action plan	
	Monitoring and evaluation	
C	Commitment, Coordination and Communication	
	Work divisions among different sectors of stakeholders, e.g., political parties, media, FEDWASAN, Red Cross, local NGOs, DAO, etc.	
	Positive competition among concern stakeholders in different localities of Mahottari district	
	Political parties commitment	
	All WASH stakeholders commitment and involvement following the Sanitation & Hygiene Master plan 2011	
	Local level leadership & local body led total sanitation (LLTS)	
	Revision of success and unsuccessful history	
	WASH stakeholders coordination and common commitment	

D	Resource Allocation	
	Resource allocation and mobilization plan at local level, e.g., D/M/V V-WASH-C	Scarcity of water supply facilities
	No support/subsidy for the construction of household toilet	Different moralities of support.
		Difficult to the availability and transportation of the non-local construction material
		Ultra-poor/ marginalized/ disabled group & low literacy rate
		Scarcity of land
		Effective management of public toilets
E	Capacity Building/ Development	
	TOT training of VDC social mobilizers and technical assistants	
F	Role and Responsibilities	
	Active role and positive attitude of D/V/W-WASH-CC	
G	Ignition and Triggering Tools	
	Sanitation card distribution, also no government services without sanitation card	
	National sanitation week and other sanitation festivals	
	Awareness program by triggering and ignition tools and social mobilization	

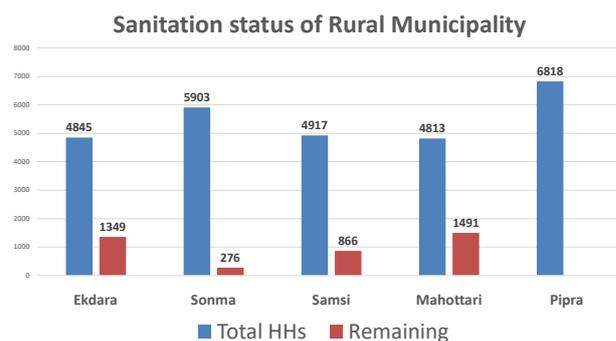
Local inhabitants of Mahottari district have been organizing ODF campaign within their settlements with the slogan:

“Ghar ghar ma charpi, swasthaya & sarasaphai Mahottari basi ko san khula disha mukta jilla banaune hamro Abhiyan”

Management of Open Defecation Free

The entire Mahottari district has been recently targeted as ODF zone. For managing the status, V-WASH CC has developed a certain code of conduct in consultation with the local communities. The code of conduct states that it is mandatory for all family members of a household to use the toilet, use of soap after the use of toilets, rewards for good practices, and punishments for the violators also prevail in the district. The future strategy of Mahottari district is to declare the district as total sanitation. The violator is fined NRs. 100 for the first time if seen and reported by the villager and as an award, 50% of the fee charged for the violator is given to the informer. Similarly, the fine amount increases with the number of times s/he is reported for open defecation within the entire villages of Mahottari district. The entire people are aware of this and the responsibility to monitor open defecation is handed over to all villagers. In addition to this, a regular and combined team monitoring by District, Village and Ward WASH CC.

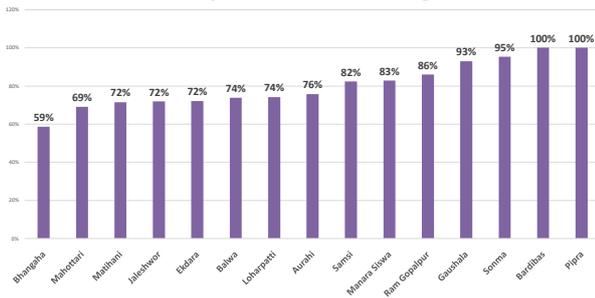
Trend of Toilets Constructed and ODF Zone of Village Development Committees in Mahottari District



ODF is a movement that is spreading. During visit, it was found that the change could be interlined only with compassion of change at all three level effort, i.e., individual, social and Institutional. The effort of institutions has been appreciated in the area. The capacity of DWSS in coordination was highly appreciated.

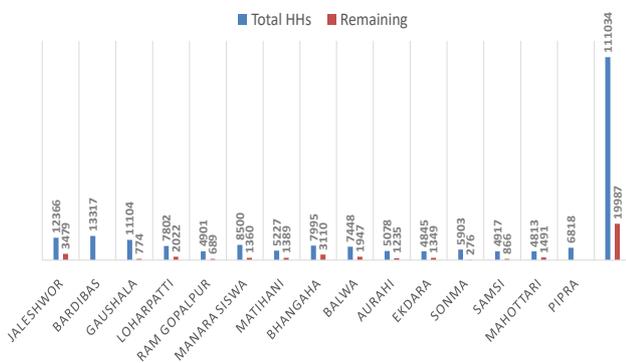
The society was found to be composed of three different thoughts prevailing, i.e., facilitator, hesitator, and registrator. The second category of people were of confusing nature.

Comparison of Percentage



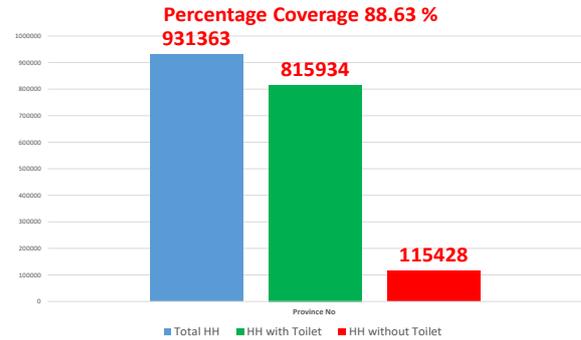
They need to be washed their brain; however, the third category of people was more of reluctant. So they should be enforced by statue of law.

COMPARISION CHART



Existing Condition of Province 2

Overall Sanitation Status of province :2 (Two)



Existing Condition of Province 2

PROVINCE : 2

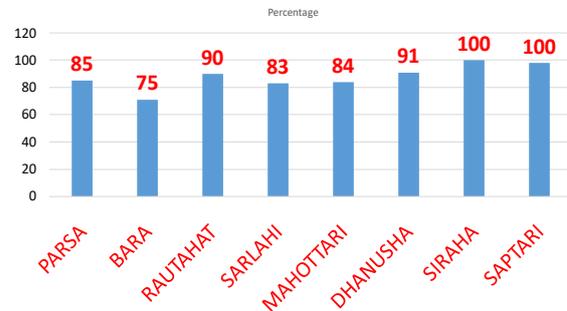


Table 9. Rate and Change in Access to Improved Sanitation

		Study VDC	Average Time to Become ODF	Increase in % Households Gaining Access	Additional Households Gaining Access	Remarks
A	With the support of incentive from WSSDO/ DDC or before sanitation conference with the SLTS Program	Ratauli	(1 year and 1 month)	20→100	1229	2073-3-12
B	Without incentive from WSSDO/DDC or After sanitation conference at the targeted Period (2015 April 15–2071 Chaitra) with CLTS program	Bardibash	(1year 1month)	40 →100 Paradigm shift	7994	The best period for ODF movement. 2073-3-30

The detailed breakdown of sustainability of individual toilets was assessed during the study period. The sustainability was assessed in terms of technical, socio-environmental, financial, and institutional dimensions through multi-criteria method. The results of sustainability of the existing toilets in the study areas are shown in spider web diagram in Fig. 4. The DP has higher degree of sustainability than other

toilets, but is also not fully sustainable. Ventilated improved pit latrines and direct pit latrines are not sustainable. The reason behind the un-sustainability of direct pit latrines is the environmental pollution attributed by excreta dumped in an open pit. Similarly the unsustainability of VIP is the technology suitability to the location.

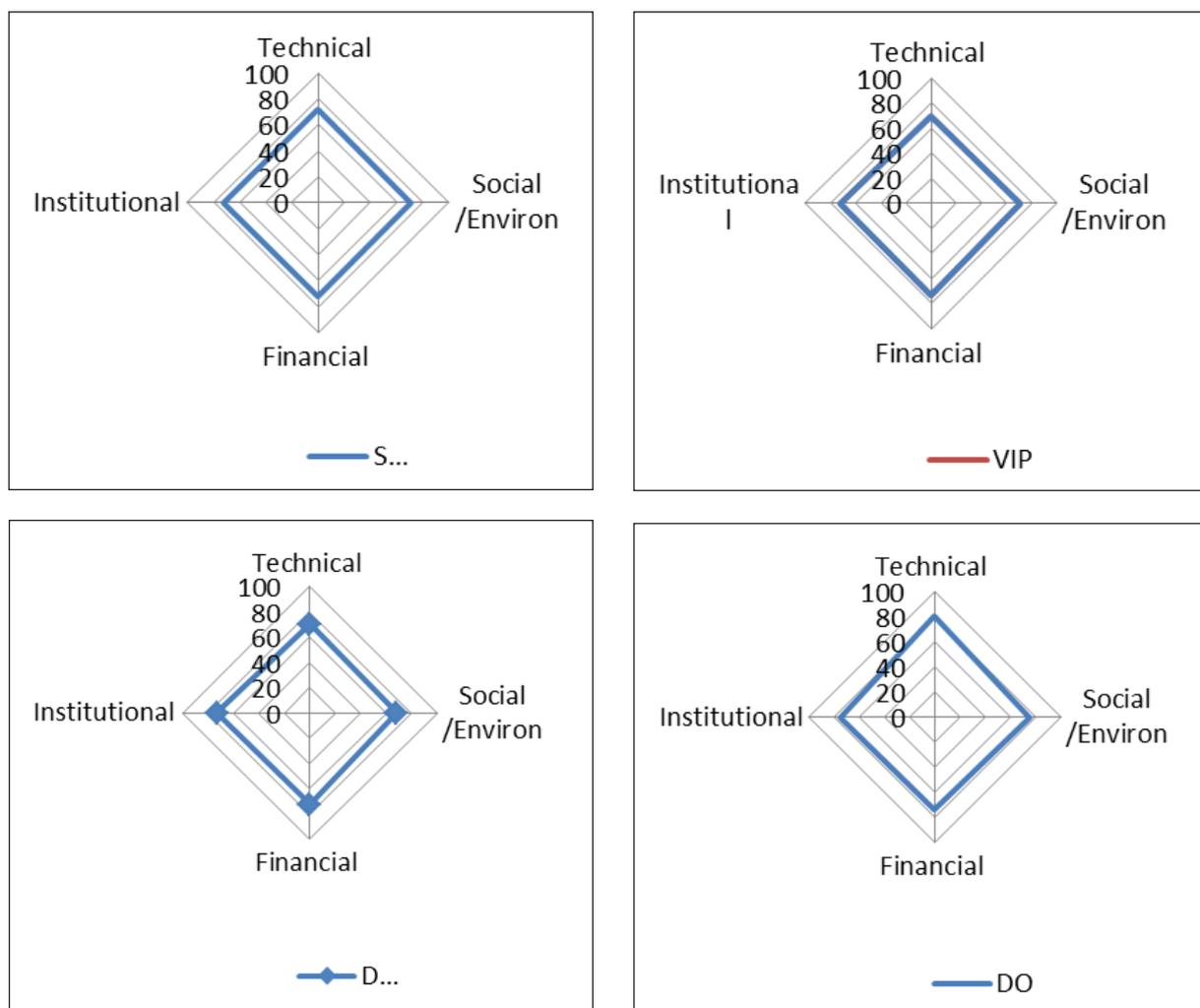


Figure 4. Sustainability (in Terms of Technical, Financial, Socio-environmental and Institutional) of Various Types of Toilets Existed in the Study Areas

It is observed through sustainability graphs that though single offset type toilet is technically and socio-environmentally a disgrace, it is accepted financially and institutionally as the cost associated with the construction is very less (NRs. 13,700). This could be the reason for the existence of this type of toilets mostly (59.79%) in the study areas, which is substantiated by Table 4.3. The cost tends to increase as relatively more sophisticated designs of toilets are made, thereby decreasing the number of these types of toilets in the study area. However, none of the toilets types constructed in the study areas are sustainable. Relatively, the DO is more sustainable as it has secured more than 70% in all the considered aspects of sustainability according to Water Aid Nepal (2010).

Conclusion

In Mahottari district, it was found that various factors have been active in achieving and maintaining the ODF zone, out of which the factors under commitment, coordination and communication had pushed the district towards ODF. This shows that where there is a serious commitment, proper

coordination and good communication, the ODF declaration and management become easier. Subsidies have been found to have impacts on the local people, and have developed dependency syndrome amongst villagers as most of them were not affordable. It can be concluded that if local people understand the value of toilets, then they are competent enough even financially, to build one in their homestead, but proper consultation should exit. The behavioral factors are still important as few people are reluctant to use toilets and prefer defecating in open space in the study area. For such violators, Mahottari district has developed a certain code of conduct in consultation with local communities that includes fine and reward in order to maintain the status of ODF zone. Every individual is responsible to maintain the ODF status in the study area; normally it contradicts with other areas where the municipality or ward is solely responsible for maintaining and monitoring the ODF status. Resource allocation for construction, operation and maintenance is another prominent factor that hinders the villages from achieving ODF status.

Recommendation

The following recommendations are made based on the aforementioned conclusions:

- Different identified factors influencing towards ODF achievement and maintenance should be well addressed in order to maintain the status of ODF.
- The study was concentrated on finding the factors influencing ODF, sustainability and types of appropriate design of toilets in hilly areas of Nepal.
- Post-ODF zone assessment of Mahottari and other hilly districts, achieving total sanitation should be carried out.
- Similar study for the factors influencing ODF achievement in districts of Terai (especially 8 District (Parsa, Bara, Rauthat, Sarlahi, Dhanusha, Siraha, Saptari), where sanitation coverage is lowest in Nepal.
- Study of the different approaches to achieve ODF as LLTS, CLTS, SLTS, WLTS, etc.
- Impact of ODF at Mahottari district.

Acknowledgment

The author wishes to thank Dr. Anjay Kumar Mishra, operation management expert for providing consultancy service to guide the overall planning and management of ODF at DWSS.

References

1. Adhikari K. Sanitation in Nepal: Past, Present and Future. Kathmandu: Kunti Bhoomi Memorial Trust 2012.
2. CBS. National Census Survey, 2011. Census. Kathmandu: Government of Nepal Central Bureau of Statistics 2011.
3. DWSS. National wide coverage and functionality status of water supply and sanitation in Nepal. Progress report. Kathmandu: Government of Nepal Department of Water Supply and Sewerage 2011.
4. DWSS. 2014. Collection of sanitation declaration. Progress Report. Kathmandu: Government of Nepal Department of Water Supply and Sewerage 2011.
5. GoN. Rural water supply and sanitation policy. Policy Document. Kathmandu: Government of Nepal Ministry of Physical Planning and Works 2004.
6. GoN. Rural water sanitation and hygiene (WASH). Approach paper. Kathmandu: National Sanitation and Hygiene Coordination Committee GoN 2011.
7. GoN. Sanitation and Hygiene Master Plan. Action Plan. Kathmandu: Steering Committee for National Sanitation Action Ministry of Physical Planning and Works 2011.
8. GoN. Nepal MDGs acceleration framework: Improving access to sanitation. Kathmandu: National Planning Commission 2013.
9. GoN. Sanitation and Hygiene Master Plan. Master Plan. Kathmandu: Government of Nepal Department of Water Supply and Sewerage 2013.
10. IWSD. Guidelines for urban hygiene promotion. Guidelines. Institute of Water and Sanitation Development 2012.
11. Mukherjee N. Factors associated with achieving and sustaining open defecation free communities: Learning from East Java. Water and Sanitation Program 2012.
12. NMIP/DWSS. Nationwide coverage and functionality status of water supply and sanitation in Nepal. Kathmandu: Ministry of Urban Development Department of Water Supply and Sewerage 2014.
13. Mishra AK, Karna AK. Assessment of management transfer process of water supply systems in Sunsari district of Nepal. *International Journal of Research -Granthaalayah* 2019; 7(1): 1-24. <https://doi.org/10.5281/zenodo.2550077>.
14. NSHCC. Nepal Country Paper on Sixth South Asian Conference on Sanitation. Country Paper. Bangladesh. 2016.
15. Mishra AK, Acharya SR. Performance assessment of Salyankot water supply project in post-earthquake scenario of Nepal. *J Adv Res Geo Sci Rem Sens* 2018; 5(3&4): 23-40.
16. Mishra AK. Sustainability and risk assessment of Salyankot water supply project in post-earthquake scenario. *International Journal of Operations Management and Information Technology* 2018; 8(1): 1-30. Available at <http://www.ripublication.com>.
17. Mishra AK. Assessment of human resource capacity of construction companies in Nepal. *J Adv Res Jour Mass Comm.* 2018; 5(4): 14-25.
18. Mishra AK. Implementation status of value management in project management practice in Nepal. *International Journal of Management Studies* 2019; 6(1): 92-108. DOI: [http://dx.doi.org/10.18843/ijms/v6i1\(1\)/13](http://dx.doi.org/10.18843/ijms/v6i1(1)/13).
19. UNICEF. Sanitation for all: Promoting dignity and human rights. UNICEF. 2000.
20. UNICEF. Community approaches to total sanitation. UNICEF Policy and Programming in Practice. *New York: United Nations Children's Fund* 2009.
21. WHO. Global burden of disease. World Health Organization 2004.
22. WHO. Research for universal health coverage: World health report. World Health Organization 2013.