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RESEARCH PAPER

Outcome and Impact of the upscaling Rural Sanitation through PATS Approach Project in District Tharparkar

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ABSTRACT

This paper presents the detailed evaluation of WASH project implemented in Tharparkar by a local NGO, sponsored by UNICEF. Tharparkar, being one of the lowest districts on HDI, is the desert belt with acute water shortage, poor sanitation and deteriorated hygiene conditions. To address WASH needs UNICEF sponsored a project. The evaluation of this project was done using mixed research methods. The results reveal that in the project area the reliance on ground water has decreased from 74% to 51%. People have shifted to alternative water sources like rainwater harvesting and storage of safe water. The evaluation found that open defection practices have decreased by 35% in targeted villages. Hygiene conditions improved, like handwashing on critical times from 40% to 70%. Overall, 10% of households in the district have achieved Open Defecation Free status. The study recommends implementing upscale community interventions to curb open defection and improve WASH conditions in Tharparkar.

Keywords: Impact Evaluation of PATS, Sanitation Status, WASH Issues in Tharparkar

Introduction

The Tharparkar, an arid zone district of Sindh, is most disadvantaged region of Pakistan falling at the bottom all national development indicators. The district has the most water scare, with scanty and sporadic rainfall as the only alternative freshwater source. With population growth the existing water sources are dwindling with depleting groundwater which is a major source of water in the region (Rajar et al., 2007). Rise of temperature with erratic rainfall patterns intensifies the droughts making them more threating to livelihood by provoking water and food shortage (Memon et al., 2018).

Groundwater of Tharparkar contains fluoride and other hazardous elements. It is moderate to high saline with extreme hardness. Such contamination put the people of Tharparkar at high risk of skeletal and dental fluorosis. This alarming condition requires de-fluoridation of drinking water in Tharparkar (Alvi et al., 2008). Water shortage aggravates the deteriorated sanitation and hygiene conditions. It affects people's habits of handwashing, bathing and washing of clothes (Hirani, 2021).

The KAP findings indicated pathetic conditions in relation to WASH. 90% of people were not having access to the safe drinking water - constrained to fetch the water from dug wells. The water storage system was almost unavailable for around 74% of the households – 24% have water tanks for rainwater harvesting. 35% of the population knew about water-borne diseases. The majority did not relate open defecation to the cause of diseases. 85% of households had no access to latrines and compelled to open defecation – due to flood 2011 damages and overall poverty in the area, villagers were unable to construct / repair toilets.

More than 90% of children did not use school toilets –The houses and schools with toilets did not have hand washing facilities. More than one-third people, especially women and children did not wear shoes, primarily due to poverty/ un-affordability - this behavior

exposed them to direct contact with feces, garbage and polluted water more often and thus more vulnerable to communicable diseases. The BLS indicated that people (in targeted villages) were knowing about the relationship of stagnant water and mosquitoes/ flies but more than 80% of them were not taking any measure to control - waste water and garbage has been thrown into streets and open fields. Regarding hygiene, the BLS indicated that 40% of all the surveyed communities had perceived knowledge of hand washing technique and claimed to wash hands at critical timings but were not practicing literally. Oral hygiene practices were also poor, especially among women (30%) and children (20%), but 15% use Miswak or toothbrush to clean their teeth – generally people were not used to taking daily bath.

UNICEF partnering with local NGO had launched a six-month project targeting potential villages of eight most affect UCs with 20000 households/140000 population in District Tharparkar - titled 'up-scaling rural sanitation through PATS approach'; in lieu of critical early recovery needs in the district. The project was designed part of a strategic humanitarian response ensuring to support local affected communities by building capacity of local implementing partner and involvement of local government stakeholders to scale up the 'Pakistan Approach to Total Sanitation' researching at-risk rural communities recovering from the flood.

KAP survey identified that 90% of households as well as schools were lacking the toilets' facility, particularly most of already built toilets in schools were reported non-functional and very filthy due to water unavailability, thus above 90% of people reported defecating in open. 95% of people did not wash their hands with soap/ash or other detergent on the critical timings (before meals, after defection, after cleaning and disposing off the feces of children, after getting in touch with livestock etc). Simultaneously, above 90 percent of people reported not having access to safe drinking water; the limited access to dug wells provided mostly contaminated water either chemically or bacteriologically. Collecting rainwater to meet the water needs is availed as good option in the area but around two third of the people found having no access to rainwater storing facility- this all was further adding to health hazards provoked by open defecation in the area. Besides, 80% of people found lacking the awareness of hygiene and hand-washing importance. Oral hygiene practices were also found poor, especially among women (30%) and children (20%), but 15% people were reportedly using Miswak or toothbrush to clean their teeth. In water scarce areas, people were reported not taking daily baths. Hence, around (35%) knew about water-borne diseases and suffered from one or the other during the last 6-months.

Literature Review

The status of water and sanitation in Tharparkar is poor. There are inadequate hygiene conditions. More than 90% of people in rural areas practice open defecation. Likewise, the handwashing is not practiced by more than 60% of people in Tharparkar even after critical timings. Similarly, around 65% of schools in Tharparkar are deprived of toilets facilities. Thus, overall sanitation and hygiene conditions are not satisfactory (Hirani, 2019).

People in far flung rural areas experience poor health and hygiene. Such areas have a lack of water facilities which deteriorates the sanitation and hygiene conditions. People living in dense hamlets with low water availability incites many hygiene and cleaning issues. Thus, WASH services are required in remote rural areas (Hall, 2018). There is inequality in access to water and sanitation services from country to country and area to area. There is significant variance in usage of water and sanitation services in rural areas (Yu et al., 2014). Tharparkar faces various socio-economic challenges. To improve overall socio-economic conditions, all stakeholders are required to work in collaboration to uplift the quality of life of the rural communities (Siyal et al., 2018).

The shortage and poor conditions of water, sanitation and hygiene conditions incite spread of various hazardous viruses across the regions in Pakistan. Inadequate water facilities and poor water and sanitation conditions cause rise and transmission of viruses in major slums and untidy areas. To address health issues, it is pivotal for the authorities to understand this issue and its severity (Sarfaraz et al., 2021).

Material and Methods

The outcome and evaluation of any project is done through assessing project goals, responses and behaviors of project participants, and performance of project activities. The outcome models of any project are developed from overall performance and behavior of participants (Liu and Walker, 2010). The evaluation of any development project not only requires understanding project objectives and goals but also understanding the approaches adopted and tools used (Woolock, 2009). Project evaluation is done using FGDs and Key Informant Interviews to collect qualitative data which is further summarized and analysis through descriptive statistics (Mgoba, 2020). Qualitative data is collected in community development structured projects through random selected FGDs with stakeholders for assessing project outcomes and conduction project evaluation (Ljunggren, 2014).

Mixed methods are useful using quantitative analysis tools and qualitative data obtained through in-depth interviews, groups discussions and meetings with stakeholders to evaluate community development projects (Tewari, 2021). Therefore, for this project evaluation mixed method was used comprised on quantitative analysis tools to analyze and interpret descriptive statistics through SPSS and to collect qualitative data through FGDs, interviews and physical verification. The objective of projects was assessed against outcomes and end results. The satisfaction and feedback of project beneficiaries was collected and analyzed. The following steps were taken for this study purpose.

Review of Project Documents

Project Documents consisting of project proposal, baseline report, log frames and progress reports were reviewed in detail to understand project objective and key achievements.

Secondary Data Appraisal

Secondary information consisting upon WASH cluster reports, District Government Reports and Other Stakeholders interventions were appraised in detail.

Tools Development

A list of hypotheses was developed, grouped and subdivided into research questions. Based on the grouping, the research tools were developed.

Households Level Questionnaire

For the data collection from primary beneficiary a household level questionnaire was devised keeping in view all indicators emphasizing project objective. The questionnaire consisted upon close ended questions. For the ease to field enumerator teams a specific coding was allocated to each expected response – the list of codes was also handed over to field teams. A section of interviewer observations was also incorporated in the last of the questionnaire.

Village Level FGDs

Village Level FGDs tool was developed consisting upon open ended & close ended questions to interview the villagers as a whole to review project outputs and outcomes in their opinions. Since village level FGDs are important to highlight the role and understanding along with ownership of the communities over the project activities. Feedback of local communities was an integral evaluation part to collect and incorporate.

FGDs with SMTs and CRPs

Social Mobilizations Teams and Community Resource Persons were key pillars for the project implementation. From the evaluation point of view the understating of project objectives and what actually achieved adopted by communities was closely witnessed by SMTs and CRPs. Hence a detailed FGD tool was developed to interview sampled SMTs and CRPs. Feedback of SMTs and CRPs was of much significance as they were front line implementers.

FGDs with Teachers

Teachers were among key stakeholders to play their significant role in education of children and imparting knowledge of health hygiene and key project messages. Hence the overall role of schoolteachers was very significant in the implementation. Keeping in view, FGDs tool was developed to gather information from schoolteachers. Feedback of School Teachers and their learning / experiences was necessary to collect and incorporate – as teachers were other key pillars at respective villages to contribute to promotion of health hygiene.

FGDs with School Children

School teachers were among key project beneficiaries – their understanding of project activities / objective and role in imparting CLTS/PATs Approach was critical. A tool was also developed to conduct FGDs with School Children. Feedback of School Children and their learning / experiences was necessary to collect and incorporate.

FGDs with Entrepreneur

In this CLTS/PATs project entrepreneurs were among key stakeholders ensure the construction material availability at beneficiary doorsteps. Hence a tool was developed to conduct FGDs with them. Feedback of Entrepreneurs and their learning / experiences was necessary to collect and incorporate.\

Sample Size

Sampling was based on Mix-Method Action Research Design (Creswell, 2010) both qualitative & quantitative data collection tools were devised for this purpose. The project has targeted 20000 households, thus, for the evaluation primary source was the targeted households. A sample of 377 households was determined based on 95% confidence level and 5% confidence interval. All the other tools including village level FGDs, FGDs with SMTs, CRPs, Teachers, Students, Masson and Government Officials were taken at total of 10% of the population.

Table 1
Types of FGDs and Sample Size

Tool #	Name	Total Population	Sample Size
1	Hh Level Interviews	20000	377
2	Village Level FGDs	153	15

3	FGDs with SMT	31	3
3	FGDs with CRP	125	13
4	FGDs with Teachers	203	20
5	FGDs with Students	203	20
6	FGDs with Masons	8	1
7	FGDs with Govt Officials	15	2

Results and Discussions

The results of this evaluation depict that the usage of dug well has reduced from 74% to 51%. 35% of households have started using underground tanks, the rest of the 14% use other means like public hand-pumps and public taps. Only a small proportion (less than a percent) of households don't purify water. 32 percent of households either filter or boil the water before drinking - there are still 67 percent households who use sand and cloth for water filtration.

Evaluation highlights that before this intervention 85% households were not having access to latrine whereas, the project has ensured latrine access to 97% households. This is appreciable that most of the households have constructed latrines on their own, this of course shows great replication whereas, project has constructed up to 20% pit and demo latrines. Still 5% men, 1% women and 7% children don't use toilets – FGDs with communities intimated that old age (men and women) usually don't prefer using toilets. On an average 7% individual members in households still do open defecation.

Surveyed households have responded that up to 98% of toilets are functional now – 72% of households clean their toilets twice a day, 19% once a day, 7% on alternate day and 2% clean weekly. 96% households have hand washing facility with soap within their toilets, 3% have without soap in the toilets and 1% doesn't have any hand washing - wash their hands in courtyard.

School led total sanitation, school wash club formation, hygiene session and teachers' orientation resulted 80% toilets in the schools are functional and used by school children. However still 7% school children prefer open defecation. Among the non-functional toilets mostly are locked. Household interviews highlight that 97% of the population understands open defecation causes suffering from diseases. On the other hand, still 3% of the population assumes that open defecation does not result in diseases. There was also sufficient change reflected in hand washing practices after this project. A very higher proportion of the population (over 95 percent) washes hands during critical times.

Radio and social gatherings are the main source of information for around 49% and 37% respectively - 5% don't have any source of information. Newspapers and TV are the source of information for the rest 9% of households. 97% have heard the health message during last month – intimate that the project has at least covered 97 percent of the population through health hygiene sessions and interventions.

It was notable that all the surveyed households were having local COs, VDOs at their village level. 18% of surveyed households even responded that they have someone member in the village organization from their household. 98% household appeared clean during physical visiting of evaluation team - 93% toilets are constructed at safer places. 7% were also the cases where outflow drainage from latrine seems hazard to environment and human health.

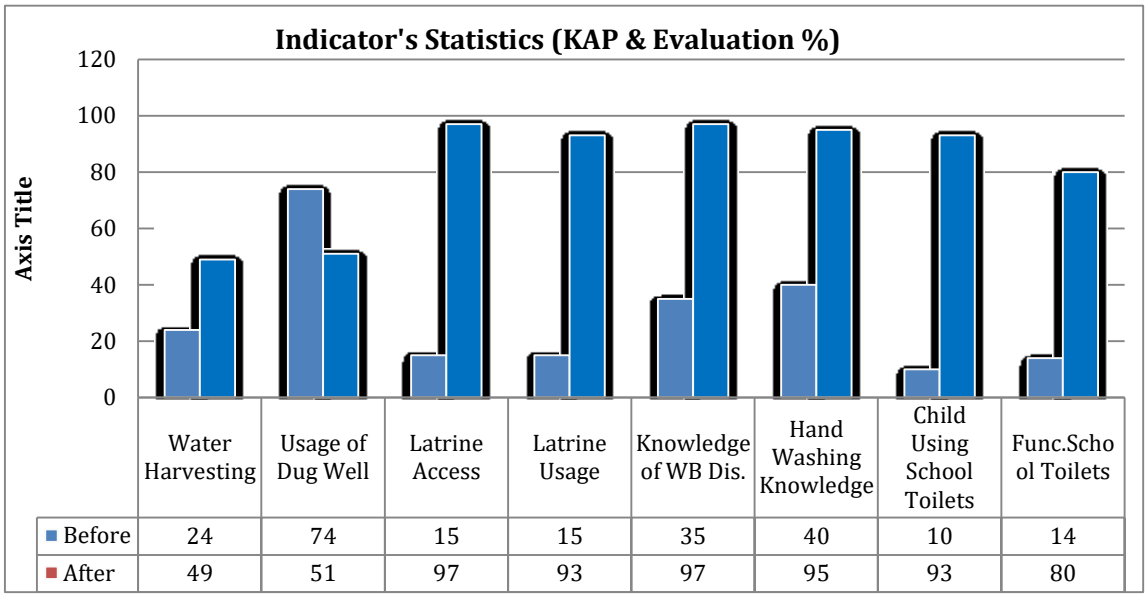

Figure 1 KAP Evaluation Indicators and Statistics

Village level FGDs identifies good community participation - 63% male members and 37% female membership prevailed in all visited VSCs. The role of Social Mobilization Teams (SMTs) and Community Resource Persons (CRPs) was found effective for this project implementation. SMTs and CRPs were conducting regular health hygiene sessions, encouraging the villagers in triggering process. As per FGDs the effective tools were glass demo, flow chart and community sensitization.

Teachers and students played a significant role in implementing hygiene awareness in their homes. They actively participated in ODF & hygiene awareness rallies - conducted various sessions over hygiene. Teachers and students also promoted triggering activities which resulted in attaining ODF status for around 80% villages.

FGDs concluded the awareness of open defecation is directly related to diseases convinced communities to constructing toilets - providing safer and secure environment to women in the villages was also motivating factor to toilet construction. FGDs also intimated that old age people (male members) aging above 60 still don't use toilet.

All the FGDs rated this approach of early recovery through PATS as workable and effective – it helped communities to be convinced to construct latrines. The project design was very good and effective; the role of CRP was highly appreciated in all FGDs. Sanitation Marts were late hence few households benefitted. The marts had supported saving transportation cost. Evaluation concludes that such marts must been established at the start of activities and their geographical location ought to be increased to ensure access to the maximum number of villages.

Based on evaluation findings pit latrines were not much appreciated. However, communities have benefitted from demo latrines, hygiene sessions, triggering and WASH focused rallies. Communities FGDs highlighted that separate CRP were needed for each village.

Training of entrepreneurs and masons was very effective in overall project implementation / construction work. For around 40% of villages FM Radio coverage was not available – however those who listened rated FM Radio messages as the best awareness means IEC materials were highly appreciated in all FGDs - they were easy to understand and interactive.

The demo latrines were highly accepted and replicated by more than 70% of the communities. On the contrary evaluation highlights that old age people feel fear in using pit latrines. Nadi Pond design for rainwater harvesting was highly appreciated and encouraged in all FGDs – replicated by several communities.

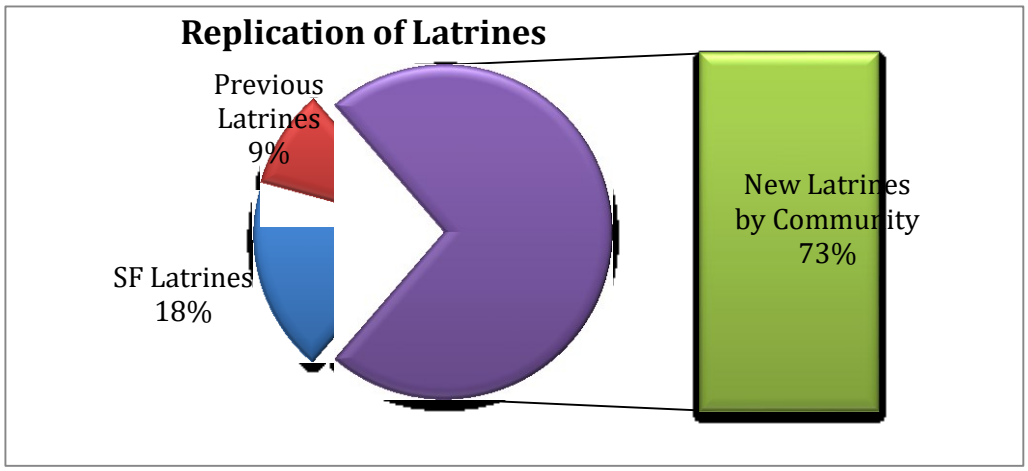

Figure 2 Latrines Replications (Previous and Current)

The triggering process is highly commended in all FGDs - glass demo (putting hair in water after touching dirt) was very sensitizing – it helped to understand villagers that how flies do infect their food items. FGDs with teachers and school children empathized that though latrines were already present in school, they were not being used whereas now everybody uses latrine in the schools after this project. The CLTS / PATS approaches mobilized teachers cum students to adopting health hygiene practices for their healthier environment. Children hygiene promotion is something new which is introduced in schools and applied. 90% FGDs revealed that every school child regularly bath, wash hands with soap, ensures nail cutting, and use latrines regularly.

100% of the visited schools ensured that soaps are distributed and being used by school children to wash their hands and bath regularly. Teachers FGDs summarized that teachers and school children jointly can play important role to achieve cum maintain ODF status of respective village.

All the FGDs with school children outlined that project activities been highly participated and enjoyed by school children, they helped in improving overall awareness and replication of project activities. 80% FGDs with school children concludes that using the existing school latrines and keeping themselves and their surrounding clean is something new learnt by this project.

FGDs with Government officials conclude that there is need for ODF work in district Thar and such project should be scaled up and implemented on long term basis. During rating project work it was shared that project work over mobilization, attaining ODF status in different villages and community awareness was very effective. It was also shared that project designs of Demo Latrines and Rainwater Harvesting Tanks were very good. According to Government officials UNICEF must follow up the project interventions and address community water storage needs in district Thar. One of the feedback items was also shared that local NGO and UNICEF to include concerned departments during project design.

Household Level Interviews

90% of the households have an average membership of below 7 people in the household. 9% have also reported their members from 11 – 15 and even worse around 1% were those households which reported more than 16 members in the house. Analysis also

estimated that 59% households are kacha structures and 14% are semi pacca – 27% families have pacca households. It is pertinent to note that 12% families even do not have any house; they live on farming lands / land provided by landlord in lieu of their labour over their fields.

With an average household size of 7 individuals per household 36% household have monthly income less than 5000 and 45% have income less than 10000. Hardly 2% of households earn above 20000 per month. The usage of dug well as primary source of drinking water has reduced from 74% to 51%. 35% of households have started using underground tanks, the rest of the 14% use other means like public hand-pumps and public taps.

The good output reported is only petite (less than 1 percent) households don't purify water. 32 percent of households either filter or boil the water before drinking - there are still 67 percent households who use sand and cloth for water filtration. Evaluation highlights that before this project 85% households were not having access to latrine whereas, the project has ensured latrine access to 97% households. This is appreciable that most of the households have constructed latrines on their own, this of course shows great replication whereas, project has constructed up to 20% pit and demo latrines. Still 5% men, 1% women and 7% children don't use toilets.

Surveyed households have responded that up 98% toilets are functional now – 72% clean the toilets twice a day, 19% once a day, 7% on alternate day and 2% clean weekly.

In all interviewed households it was found that if the latrine is choked, they repair it on their own. In response to the question for highlighting the reasons if latrine is not available a very minute population (less than 3 percent) replied that they don't have space cum unaffordability. Households' questionnaire also intimated that 7% individual members in households still do open defecation. In response to the question hand washing facility in the latrine 96% households responded that they have hand washing facility with soap, 3% responded hand washing facility without soap and 1% don't have any hand washing facility in the toilets. They wash their hands in the courtyard.

Use of School Latrine

School led total sanitation, school wash club formation, hygiene session and teachers' orientation resulted 80% toilets in the schools are functional and used by school children. However still 7% school children prefer open defecation. Among the non-functional toilets mostly are locked.

Awareness and Hand Washing

Household interviews highlight that 97% of the population understands open defecation causes suffering from diseases. On the other hand, still 3% of the population assumes that open defecation does not result in diseases. Most of the visited households shared that diarrhea is very common due to open defecation. There was also sufficient change reflected in hand washing. A very higher proportion of the population (over 95 percent) washes hands before eating a meal. Evaluation also highlighted that after defecation, 28% regularly use soap with water, 42% use sometimes soap with water, 12% use ash with water and 18% use only water – for hand washing. 87% women also wash hands before feeding children and around 90% wash hands before cooking.

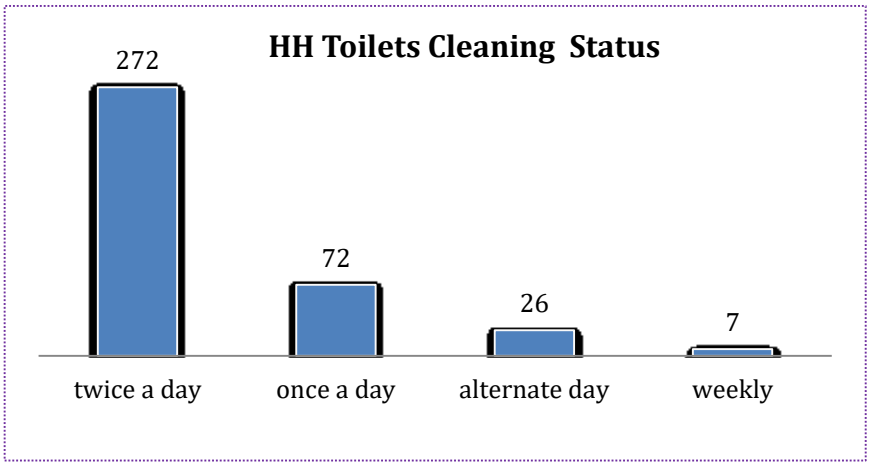

Figure 3 Cleaning Status of Households Toilets

Source of Information

Radio and social gatherings are the main source of information for around 49% and 37% respectively, 5% have reported that they don't have any source of information. Newspapers and TV are the source of information for the rest 9% of households. 97% responded to yes against the question "have you heard any health message during last month" – this of course intimates that the project has at least covered 97 percent of the population through health hygiene sessions and interventions.

Availability of Village Level Organization

It was notable that all the surveyed households were having local COs, VDOs at their village level. 18% of surveyed households even responded that they have someone member in the village organization from their household.

Disability

5% households reported that they have disabled members in their household. Major disabilities were blindness, deafness and mentally retarded.

Personal Observations

98% of households appeared clean during physical visiting of the field teams. In 99% household drinking water is kept in clean containers and 98% of these containers were covered. Still 7% of households practice open defecation. 98% household latrine appears clean and 93% are constructed at safer places. 7% were also the cases where outflow drainage from latrine seems hazard to environment and human health. 87% of household Nadi Pond is available – among the available Nadi Ponds 90% households store water in these ponds.

Village level FGDs

Village level FGDs identifies that all the villages have Village Sanitation Committee (VSC) in the visited villages. Overall, 63% are male members and 37% female members in VSC. Villagers shared that VSCs played a significant role by gathering communities to promote health and hygiene through hygiene sessions and support in Open Defecation Free – ODF status of the villages. VSCs also played key roles in monitoring the construction work of latrines; underground water tanks (Nadi Ponds) and helped communities in replication of the demo latrines. VSCs were also monitoring and supporting Community Resource

Persons – CRPs and supported in overall implementation of the project in respective villages.

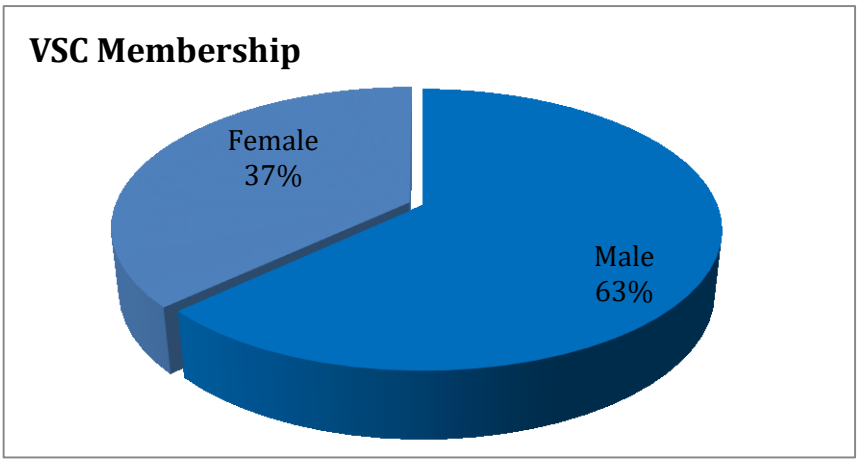

Figure 4 Gender breakup of VSC Membership

According to villagers (85% FGDs) the role of Social Mobilization Teams (SMTs) and Community Resource Persons (CRPs) was very effective for this project implementation. SMTs and CRPs were conducting regular health hygiene sessions, encouraging the villagers in triggering process. As per FGDs the effective tools were glass demo, flow chart and community sensitization.

Villagers endorsed that teacher and students played a significant role in implementing hygiene awareness in their homes. They actively participated in ODF & hygiene awareness rallies - conducted various sessions over hygiene. Teachers and students also promoted triggering activities which resulted in attaining ODF status for around 80% villages. Villagers assume that since school children and teachers have been educated by project staff for hygiene awareness, which will for sure, ensure greater sustainability of the health hygiene practices in community.

In response to the question for describing the reasons which made villagers convinced for toilets construction, FGDs highlighted that 20% villages responded that open defecation is directly related to diseases therefore community constructed toilets, besides it was also kept in mind to provide safe and secure environment to women in the villages. 53% shared that latrines are necessary for overall health of the households and necessary for women and children particularly. Since it was hard for them to go outside in fields – which was neither safe. They were also of the idea that these latrines are not costly. 27% replied that construction of toilets was very important to get rid of disease and women protection. It is notable that 100% FGDs kept health of their family members and more importantly women protection as top reason which convinced them to construct toilets.

FGDs with SMT & CRPs

During all the FGDs with Social Mobilization Teams and CRPs it was highly emphasized that triggering process was one among very effective and efficient approach for attaining project outputs and outcomes. Even some of SMT members shared that "glass demo (putting hair in water after touching dirt) was very sensitizing – it helped to understanding villagers that how flies do infect their food items". CRPs were of the idea that triggering process was very much efficient and effective to educate villagers on health and hygiene awareness. SMTs shared that it was perfect tool to get result of community awareness.

In response to the question "what worked well to mobilize/influence communities in both achieving and maintaining ODF" a vast majority responded that involvement of CRPs, Masons, construction work and triggering process worked well in achieving ODF status. 20 percent FGDs highlighted that all project interventions were perfect enough for this purpose. A few also shared that expense on diseases and overall sufferings worked well to mobilizing communities to attain ODF status. 15 percent were even of the idea that the late establishment of Sanitation Mart did not work well.

In response to the question for outlining the reasons of project success and constraints to ODF, majority of the FGDs summarized that role of SMTs and CRPs along with key awareness messages and triggering process were the reasons in overall project success. However, a few FGDs also highlighted that recent drought and overall poverty in the area, along with short project duration were the reasons / constraints to attaining ODF status for few villages.

In the opinion of SMTs and CRPs this approach of early recovery through PATS is quite workable / effective in responding to WASH needs for flood affected people. However, few were of the idea that overall duration of mobilization to communities should have been greater. It could be concluded that if more time has been given to project interventions along with the active role of VSCs, all the targeted villages must have attained ODF status.

SMTs and CRPs were of the idea that the design of the project was good, and it should not be changed or replicated in future. When SMTs and CRPs were asked that how they found sanitation marts - what benefits / outcomes achieved by Sanitation Mart almost all of them responded that Sanitation Mart was good approach, but it was delay hence few people were benefitted from the Mart, as the many households already constructed latrines.

Whereas training of masons and entrepreneurs has given very successful results, all of the FGDs concluded that trained masons and entrepreneurs supported in construction of latrines and ensure quality work accomplishment timely.

Both SMTs and CRPs were of the idea that for awareness FM radio programme and IEC material were easy to understand and very useful. FM Radio Programmes were very effective as villagers do listen to FM Radio (prime source of information & entertainment) very often - hence awareness messages on FM radio were effectively accepted and adopted by villagers. IEC material helped them to be more practical and concrete on the shared health hygiene practices.

In response to the question "how did they find project demo latrines" almost all FGDs concluded that demo latrine design was the best, cost effective and easy to replicate – it had mobilized and motivated most of the villages to replicate. The design being very convenient, adopting traditional approaches and cost effective, has been endorsed by several villagers to their neighboring.

WASH focused rallies and theaters were also very effective - highly participated in by local communities. In response to the question of what the effective methodologies were to mobilize communities to attain project outcomes, it is concluded that health and Hygiene awareness were very effective tools to mobilize the communities. More than 80% of the FGDs ensured that respect and honor for women was key motivation to villagers to replicate WASH practices and to construct toilets. For villagers it was touching to let the women go in field for defecation, which was off course insecure socially unacceptable. Demo latrine design and overall motivation by the project helped in replicating project interventions at large scale. Hygiene Kit and training has also been rated effective tool during more than 60% FGDs. Similarly triggering glass demo and hygiene sessions found effective tools in attaining ODF.

To the SMTs and CRPs increased project duration and future follow up visits by PROJECT could possibly had attained even more project results. For the project sustainability SMTS and CRPs were of the idea that continuity of project and long-term interaction with local communities will sustain project interventions.

FGDs with Teacher

In response to the question "how the project activities executed in schools- which were satisfactory, and which were not satisfactory" FGDs concluded that different activities like hygiene sessions, triggering, soap distribution and WASH Club formation in school were satisfactory. It had also been highlighted those activities started late due to holidays. Teachers shared that WASH Club School activities completely changed behaviors - now children themselves and their surroundings net and clean.

It shows great achievement of the project that teacher involved themselves heavily in project activities; they conducted hygiene sessions and mobilize the community to constructing latrines and using them. Teachers of all the visited schools shared that they participated in triggering, rallies and awareness for the improvement of hygiene and behavioral change of school children.

FGDs empathized that though latrines were already present in school, but they were not being used whereas now everybody uses latrine in the schools after this project. The CLTS / PATS approaches mobilized teachers cum students to adopting health hygiene practices for their healthier environment. Children hygiene promotion is something new which is introduced in schools and applied.

In response to the question about Water, Sanitation and Hand Washing conditions in schools" it was concluded that at present excellent water, sanitation and hand washing practices are adopted. Teachers and School Children are used to using clean drinking water, sanitation conditions cared for and improved, and hand washing is adopted among daily common practices to save themselves from water borne diseases. 90% FGDs revealed that every school child regularly bath, wash hands with soap, ensures nail cutting, and use latrines regularly.

Surveyed schools ensured that all of the teachers cum students use school toilets; there is no more open defecation. Teachers conduct hygiene sessions in schools, they also ensure frequently that students take regular baths, clean their teeth, cut nails and wash their hand properly.

Teachers were asked did project team distribute soaps in schools - what was the implication of that activity. 100% of the visited schools ensured that soaps are distributed and being used by school children to wash their hands and bath regularly. Teachers FGDs summarized that teachers and school children jointly can play important role to achieve cum maintain ODF status of respective village. Rallies and awareness sessions by teachers and school children can effectively mobilize the community to sustain ODF status. The approach of early recovery through PATS has been categorized very effective in responding to WASH needs of flood affected communities. Teachers were also of the idea that for long term sustainability and replicating of ODF status project continuity and follow up is needed.

FGDs with school children

FGDs with school children highlighted that all the project activities were very effective and efficient including hygiene sessions, WASH clubs and triggering. Children shared that though toilets in schools were already present, but they were neither used. The project interventions have mobilized and sensitized them to using latrines, washing their hands, taking regular baths and cleaning teeth regularly.

Hygiene sessions by School WASH clubs, IEC material and triggering played a significant role in overall project execution. Students participated in all these activities. All the FGDs with students outlined that project activities been highly participated and enjoyed by school children, they helped in improving overall awareness and replication of project activities. Using existing latrines and keeping themselves and their surroundings clean is something new learnt by school children (80% FGDs concluded). Before this project their surroundings and environment were less hygienic which resulted in suffering off diseases. Hand washing at critical times (before having a meal and after defecation) is also something very new for school children, which has now been adopted as regular habit after this project.

90% children of visited schools shared that teachers regularly hygiene sessions and ensure hygiene practices after this project. All the children of visited schools confirmed that soaps have been distributed in their schools by PROJECT team, they receive soaps and now using for hand washing and bathing.

FGDs with school children also concluded that children played significant role to attaining ODF status in their respective village. Children were frequently sharing benefits of latrines with their parents who off course played important role in mobilization and latrine construction in their houses. Acquired knowledge of hygiene was also being shared by school children with their parents – which in turn played a significant role in ensuring environmental hygiene.

All the FGDs with children concluded that this approach of early recovery through PATS was very successful and accepted by all, children were also of the idea that time duration was short, and project needs more follow up visits and reminders.

FGDs with Entrepreneur

FGD with masons ensured that training was very effective, and trainers used effective methodologies to train them. The design of the training was also very effective, and each component supported each other. The entrepreneur shared that they participated in the project through provision of low-cost sanitation material at beneficiary's doorstep – were in coordination with masons and CRPs. In the entrepreneurs' opinion marketing strategy and sanitation mart worked well – villagers were having good response over sanitation marts. Around 70% of the affording beneficiaries availed material through the marts and constructed their toilets.

According to entrepreneur PATS approach is workable and renders quick results. The marketing strategy was satisfactory. It can be improved by establishing more marts at UC level so that every village can benefit and by reducing the mobility prospective.

In response to the question "how masons and entrepreneurs can further, sustain and scale the sanitation drive in Thar" It was replied that entrepreneurs should have to continue the sanitation material supply for other villages, by creating demand through local masons and notable persons of the village.

FGD also concludes that the project has been able to impart good change - people have constructed latrines and are using them as well. Improved overall hygiene is being observed among all intervened villages. Besides, the same program should be implemented into remaining villages of Thar so that other communities can improve their health and hygiene status and get rid of water and human feces borne diseases.

Conclusion

The paper concludes that the usage of dug well has reduced from 74% to 51%. The intervention has ensured latrine access to 97% of households in targeted villages. Majority

of the households have constructed latrines on their own. Still 5% men, 1% women and 7% children don't use toilets – FGDs with communities indicated that old age (men and women) usually don't prefer using toilets. On average 7% individual members in households still do open defecation. It seems that the duration of intervention was short to put concrete efforts to mobilize whole population for using latrines. Majority of visited toilets (98 percent) were functional and clean, having hand washing facilities within them.

Similarly, school led total sanitation, school wash club formation, hygiene session and orientation of teachers resulted 80% functional toilets in the schools and used by school children. However still 7% of school children prefer open defecation. Among the non-functional toilets mostly are locked. The project had rendered good awareness in local communities as 97% of the population understands that open defecation causes suffering from diseases. There was also sufficient change reflected in hand washing practices after this project. A very higher proportion of the population (over 95 percent) washes hands during critical times.

It was notable that all the surveyed households had local COs, VDOs in their villages. 18% of surveyed households even responded that they have someone member in the village organization from their household. The approach of early recovery through PATS was found workable and effective, it had depicted greater relevance to project objectives – it helped communities being convinced to construct latrines. The project design was very good and effective; the role of CRP was highly appreciated. Sanitation Marts were late hence few households benefitted; Marts supported in saving transportation cost. Evaluation concludes that if these Marts had been established at project start, they might have rendered intended benefit to maximum number of beneficiaries.

Based on evaluation findings pit latrines were not much appreciated. However, communities have benefitted from demo latrines, hygiene sessions, triggering and WASH focused rallies. Communities FGDs highlighted that separate CRP were needed for each village. Training of entrepreneurs and masons was very effective in overall project implementation / construction work. For around 40% of villages FM Radio coverage was not available – however those who listened to FM Radio messages had rated it as the best awareness means. IEC materials were highly appreciated throughout the evaluation stages - they were easy to understand and interactive. The demo latrines were highly accepted and replicated by more than 70% of the communities. It shows great achievement of the project that teacher involved themselves heavily in project activities; they conducted hygiene sessions and mobilized the community to construct latrines and using them. 100% of the visited schools ensured that soaps were distributed and being used by school children to wash their hands and bathe regularly.

Good governance and accountability have greatly impacted operations in all eight targeted union councils. It has served as catalyst to the process of community sensitization and adoption of interventions. Communities actively participated in the imparted activities. The latrine coverage has greatly improved by most villages replicated demo latrine model. The design of demo latrines was perfect with adequate cost effectiveness. It is one among major achievement of the project that more than 80% targeted villages have achieved complete ODF status. The project has had prominence in the area as most of the modalities including demo latrines, Nadi ponds and WASH practices have been greatly accepted, adopted and replicated by several communities. This greatly reflects the efficiency and effectiveness of the project. A greater relevance of the activities to meet desired WASH need of flood affected communities in the rural union councils of District Thar is visible throughout all the FGDs with project stakeholders.

More importantly, water, being a key factor contributing to the livelihoods in Tharparkar, is harvested by communities in visited villages. Ground water and rainwater are two major sources of water in the district for both drinking and domestic purposes.

Hence, water scarcity is gigantic issue in Thar Desert that hinders in maintaining ODF and use of pit toilets needing additional water; however, people's top priority remains on collecting drinking water, thus provision of RWH tanks to 9% of poorest under this intervention proved much successful contributing to well maintain the ODF in relevant benefited households.

The provision of 'early recovery' needed WASH NFIs including hygiene kits, Gerry cans, bucket and soaps etc. while used as incentives and rewards for achieving and maintaining ODF proved successful enough and have value-added into the PATS led sanitation drive particularly in rapid construction and usages of toilets by community. It is learned that the WASH related small incentives to households create a sense of 'collective-race' in village-community influencing them extensively engage in toilet construction and further inclining to its usage. Besides, WASH NFIs helped beneficiaries to inculcate new habits of practicing handwashing, hygiene and properly collecting, handling as well as storing household water.

Inventions of innovative local toilet related technologies by communities themselves speed up community partaking to achieve the ODF. The 'early-recovery' through PATS has worked well in recovering and achieving ODF as desired. However, to make the investment more rewarding and to maintain cum achieve ODF, there is dire need to keep engaged with communities through such interventions on long term basis. Lastly, strategies are required to be adopted to influence concerned authorities, at both district and provincial level, to engage government in upscaling ODF status in rural villages of Tharparkar.

Recommendations

The 'recovery' through PATS helped to achieve ODF in total 10% communities of Tharparkar. However, additional 10%+ communities are already ODF, thus nearly 80% of the remaining communities in Tharparkar are yet exposed to hazards of open defecation. Hence it is recommended to take all the possible measures to further scaling rural sanitation through PATS in Tharparkar.

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