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Guest Editorial

Seven-Flag Approach to Total Sanitation: Sharing Results of a Pilot in Nepali Schools

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Abstract

Objective: to share the experience regarding an innovative approach, "Seven-Flag Approach to Total Sanitation (7FATS) in Schools" introduced in Nepal.

Background: Safe drinking-water, use of improved sanitation and hand hygiene remained an unfinished millennial agenda and is carried over as part of SDG 6 and allied goals in Nepal. Particularly, to improve sanitation services in schools, Government of Nepal implemented several initiatives. While there was an apparent improvement, equally the continuing challenges have been the sustainability, the needed behavi-orural change, and lack of motivation both amongst teachers and students. 7FATS or total sanitation in schools is an approach, which addresses these issues.

Concept: The underlying concept is that, as minimum requirement, children in school should use clean toilets, wash hands with soap, and drink water from a safe supply. In this manner, children, who spend a substantial part of their time in schools, can improve their own hygiene behavior, and also take the mes-sage to their families and communities, thus acting as agents to improve their knowledge and impact behavior towards hygiene.

Practice and process: Seven steps involved include: constitution of a school sanitation team; after train-ing the team analyses the sanitation situation of school; organisation of a sanitation conference to orient all students on 7FATS concept and practice; students are divided into seven groups to compete for 7FATS activities; fund raising to support 7FATS in schools; winner groups are rewards; and school is declared as 7FATS School when all seven groups have raised their flags to full stand.

Discussion: concept paper, documentary and leaflet, and a 7FATS-WASH handbook has been developed as advocacy and standardised implementation tool. But it is the technical assistance, demonstration effect, sanitation conferences attended by dignitaries and parents, reward and recognition of winner groups, and adoption of schools by national and international organisations for implementing 7FATS.

Conclusion and recommendations: 7FATS approach proved to be a powerful tool for driving school towards total sanitation in an integrated, effective, and sustainable manner. However, for it to be more useful, there is a need for uninterrupted water supply, culturally sensitive promotional activities, resources for rewards and recognition, continuity of focal teacher and students' leader, and develop mechanisms for monitoring and evaluation of initiative. Also, to enhance health impact, "One School, One Nurse" initiat-ive may be replicated and scaled up.

Introduction

Environmental health refers to the assessment and control of environmental factors, which depending upon their nature, susceptibility of the affected people, and local and national systems, capacity to cope with may result, inter-alia in an increase in water, sanitation and hygiene (WASH)

related issues like the diarrhoeal diseases. Globally, in 2016, about 2 million or 3.3% of total deaths, and 123 million or 4.6% of total disability-adjusted life-years (DALYs) was attributed to inadequate WASH.[1] In Nepal, diarrhoeal diseases constitute fourth leading cause of death. In 2018, these took the toll to 9,834 deaths or 5.91% of total deaths. Age-adjusted-death rate is 55.11 per 100,000 population, and Nepal was ranked # 37 in the world.[2] Therefore, diarrhoeal diseases, together with communicable diseases, are second on the national list of research priorities.[3]

Diarrhoea, usually a symptom of intestinal tract infection, is caused by a variety of bacterial, viral, and parasitic organisms. The infection spreads through contaminated food or drinking-water or from person-to-person because of poor hygiene. The incidence of disease can be reduced, by one third, by a simple act of washing hands with soap and water. Likewise, improved sanitation and better-quality drinking-water can reduce diarrhoea morbidity by another 37.5% and 45 % respectively[4]. Regarding children, out of the total 443 million school days lost, 272 million are due to diarrhoea alone, and transmission of 40% of the cases is from within the schools[5]. Similarly, worm infestation, on average, causes a loss of 3.75 IQ points or a total loss of 633 million in children in lowest income countries[6]. In Nepal, while there is no data on hygiene at country level, almost one-fourth (23 %) of schools don't have a water supply facility. 31 % of school children have limited, and 47 % (less than half) of schools have only basic water supply services. Similarly, there is no sanitation service in 18 % of schools, while 82 % have limited facilities[7].

The Government of Nepal, to ensure water quality and minimize water-related health risks, introduced National Framework of Child-friendly School in 2010[8], which in 2011 was shaped as "School Sector Development Plan".[9] Additionally, as a part of School Sector Reform Plan (2009-15) and in collaboration with UNICEF, a programme on WASH in School (WinS) was implemented. The aim was that, by 2015, 'there shall be no school with-out toilet'. Later, National Planning Commission, to align WinS with MDGs, dubbed the initiative as "Acceleration Framework on Sanitation," and several developpment partners came to support it[1]. But, equally, the initiative faced continuing challenges regarding its sustainability, the needed behavioural change, and lack of motivation both amongst teachers and students[10]. It is also particularly important that the sanitation system is economically viable, socially acceptable, technically, and institutionally appropriate, and protective of the environment and the natural resources[11].

Department of Water Supply and Sewerage Management in Ministry of Water Supply, working with WHO, in 2016 introduced an innovative approach called, "Seven-Flag Approach to Total Sanitation (7FATS) in Schools". This approach, aiming to address sustainability, promote behavioural change, and motivate both teachers and students, has been applied in several schools in Nepal. This paper shares this experience. Firstly, after linking WASH with sustainable development goals (SDGs), the initiative is described. Following that, the strategy and process, as followed in implementation, is explainned. Finally, the lessons learned and recommenddations for replication to more schools in Nepal are provided.

To bring evidence for this paper, a rapid review of the health, education, water, and sanitation sector's organisation and management in Nepal was undertaken. Data was collected qualitatively, relying on the unpublished grey literature, mainly plans and reports of ministry of health and population and partner agencies. Second, data and experience from other countries as published literature was reviewed. Third, the authors, since having worked in the health and environment sector and being the architect of the initiative, bring their insight and personal experiences. The data were analysed manually.

[1]The partners included in the endeavour were: UNICEF, Save the Children, Plan International, Room to Read, Nepal Red Crescent Society, ENPHO, NEWAH, CCS Italy, Handicap International, Helen Keller International

Box 1: Nepal targets for SDG-6 related to water and sanitation:

6.1a: By 2030, 95% households with access to piped water supply;
6.1b: by 2030, 99% households have basic water supply coverage;
6.2a: 95% households using improved sanitation facilities which are not shared;
6.2b: 98% population using latrines;
6.2c: 99% local authority areas that have declared open defecation free;
6.2d: 99% households have sanitation coverage;
6.2e: 100% urban households that have toilets connected to sewer systems.
Ref: NCP, sustainable development Goals 2016-2030, national (preliminary) Report

WASH in School in SDGs era

Safe drinking-water, use of improved sanitation and hand hygiene remained an unfinished millennial agenda and is carried over as part of SDG 6 and allied goals.[12] In this regard, SDG target 3.9, global indicator 3.9.2 denotes, "mortality rate attributed to unsafe water, unsafe sanitation, and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)". Likewise, SDG 6 aims, by 2030, "ensuring the availability and sustainable management of water and sanitation for all." Specifically, targets 6.1 and 6.2 are relevant to WASH. The former is about "safely managed drinking water services", while the latter deals with "safely managed sanitation and hygiene services". In addition, other SDG targets related to WASH are 1.4, "universal access to basic services," 3.9.2, "disease burden from inadequate WASH", and SDG target 4.a.1, "proportion of schools offering basic services, including basic drinking water, sanitation and handwashing facilities in schools".[13,14]

Nepal's progress towards achieving MDG 7, "environmental sustainability," was not great. Yet, building on the achievements of MDGs, Nepal committed to pursuing and achieving water and sanitation related SDGs by 2030 and engage in a systematic follow-up and review of its progress towards SDGs and targets, using a set of global indicators (see box 1). Around the same time, on 23 September 2015, Nepal promulgated its new constitution. According to article 35(4) of the constitution of Nepal, "access by every citizen to clean drinking water and sanitation is a fundamental right".[15]

In response, therefore, a Nepal's WaSH Sector Development Plan (SDP, 2016-2030) was prepared to address the constitutional obligations and achieve water and sanitation related targets in SDG-6. The plan includes WASH in schools, health care facilities, and public places with the aim to ensure "child, gender and differently-able-friendly" WASH services. In other words, public latrines should be separated by gender and accessible to children and people living with disabilities. In this regard, the Ministry of Water Supply, following WHO Guidelines on Sanitation and Health and, in collaboration with the Ministry of Education, Science and Technology, designed a certification system for schools with adequate WASH and developed a way to monitor WASH in schools. Within the three tiers of the federal system, the SDP has been adapted for rolling-out WASH plan to all municipalities. To assist in monitoring the initiative, multi-stakeholder National Sanitation and Hygiene Coordination Committee and WaSH Coordination Committees at Provincial, District and Municipality levels have been active[16].

Seven-Flag Approach to Total Sanitation in School

Evolution of Approach

A comprehensive package called "School Led Total Sanitation" was conceptualised with the aim to empower schools and communities to eliminate open defecation (OD) from school's catchment area and promote hygiene and sanitation using students as the change agent[17]. As a result, many school catchments, communities were declared OD free. For the schools to implement sanitation and hygiene in a systematic manner, a 'star approach' has been advocated[18]. The Ministry of Education, Science, and Technology, in this regard, developed an operating procedure to monitor and evaluate, by the school itself, the total sanitation using hygiene-related indicators, essentially to improve WinS[19].

Different approaches to improving access and utilisation of water, sanitation, and behaviour (of students and teachers) towards better school hygiene are in practice. In the context of SDG, schools and health facilities since in focus, Nepal developed WASH sub-indicators in the national context. However, the sustainable use of WASH facilities in school is a challenge. Also, the existing sanitation programmes do not cover WASH in its entirety. As a result, students are at risk of acquiring diseases that are transmitted due to poor quality drinking water, absent or poorly maintained or under-utilised sanitation facilities, and bad hygienic conditions. The girl students are more vulnerable, particularly during the menstruation period, which forces many of them abstaining from school and thus increased school dropouts[20].

7FATS in School: Concept

The "Seven Flags Approach to Total Sanitation (7FATS) in School" has been advocated as a concept and practice to address sustainability and behaviorural change. The underlying concept is that, as minimum requirement, children in school should use clean toilets, wash hands with soap, and drink water from a safe supply. The seven elements defined for this total sanitation approach are the following:

1. Child washes both hands with soap and water after using toilet and before eating.
2. Child uses a clean toilet or urinal.
3. Child drinks water from safe (piped) supply.
4. Menstrual hygiene facility is available.
5. WASH facilities are available equitably to all students.
6. Child consumes hygienic and safe food.
7. School has clean environment.

The above seven elements of 7FATS in School are the indicators, each having five sub-indicators for measuring progress. **Appendix A** is a matrix of indicators and sub-indicators and standards for each of those. The 7FA'TS in School approach contributes to achieving SDG targets 6.1 and 6.2, but importantly to SDG 4. The latter is about 'assuring the provision of safe, non-violent, inclusive, and effective learning environments for all by building and upgrading education facilities that are child friendly, disability, and gender-sensitive'. This approach is relevant in Nepalese context since children, who spend a substantial part of their time in schools, can improve their own hygiene behavior, which will help decrease the incidence of WASH-related infectious disease transmission. Also, while the initiative addresses issues around hygiene as well as dignity of the students, particularly of girls, who take the message to their families and communities, thus acting as agents to improve their knowledge and impact behaviour towards hygiene[21]. An evidence to that is a voice of teacher reflected in box 2.

Box 2: Teacher voice:

"The 7FATS is unique because it approaches students to systematically cultivate their interest in keeping school premise clean. Prior to this initiative was introduced, we (teachers) were aware and involved in school sanitation. The students would though clean, but often after instruction by the teachers. Now, after implementation of 7FATS programme, students take it as their function and compete with fellow colleagues for raising their flag to new height and take the message to their families and communities. In this manner, the tasks of teachers have become easier."

Netrapani Bhandari, Teacher and 7FATS Coordinator

7FATS in School: Practice and Process

This approach was tested as a pilot in two public sector schools: Shree Ambika Secondary School, Kaski, Pokhara, and Shree Swet Baraha Secendary school Kavre.[22] Implemented with technical support of WHO, the results of pilot were encouraging. For example, in a span of one year the achievement of the former school was quite significant, as shown in table. These results led to the replication of initiative gradually to more schools in Nepal. In the following the implementation process of the initiative is described in further details.

State of school sanitation and hygiene before and after 7FATS		
Attribute	**Baseline - prior to the initiative**	**Status after one year**
Use of toilet	40 %	75%
Hand washing and personal hygiene	25%	78%
Menstrual hygiene	29 %	73%
Equity in WASH	55 %	90%
Safe water	45 %	75%
Safe food	26 %	76%
Clean environment	25 %	73%

The 7FATS in schools is implemented in steps. Firstly, a school sanitation team is constituted. It comprises seven teams, one each for the seven indicators of 7FATS. In case, certain schools have less than 7 (say 5-6) groups of students, indicators can be readjusted and accordingly the number of flags. Each team, in the overall guidance of a focal teacher, is led by a student captain. A vice-captain is selected from a grade lower to that of the captains with the objective to assist and take responsibility in his/her absence. This 15 members' team (7 captains + 7 vice-captains + one focal teacher) is given a two -days training on 7FATS. Fridays are celebrated as sanitation days, when focal teacher conducts activeties such as, singing a song, reciting a poem, playing a drama, or an art competition related to the good sanitation and hygiene practices.

In the **second step,** the sanitation team, after having been trained, analyses the existing sanitation situation of school. This is done using indicators and sub -indicators (see appendix A), and quantitative scores (average of 7 teams' self- determined scores) are assigned to each, based on the predefined standards. The focal teacher keeps confidential the score earned by different teams. In the third step, Sanitation Conference is organised. It is a forum where all students in school are oriented on the 7FATS concept and practice. At this occasion, scores earned by teams are announced, and to commemorate the initiative, the teams having scored top against any of the seven indicators hoist flags of designated colours. The team's captains wear a dress of colour corresponding to their respective flags. For the conference, participated by the dignitaries, parents, and students, a sanitation song is composed, which is sung on sanitation days (each Friday) during assembly. The sanitation song, representing the essence of 7FATS, composed by teams guided by the focal teacher, is selected through competition. The winning team is rewarded with a cash prize. The usefulness of com-petition culture inculcated through the initiative was lauded, as a student voiced (box 3).

Box 3: Student Voice:
"While in training, we were told that this is not simply a task of doing together, but to accomplish competitively. The feeling of a competitor brought a sense of encouragement and motivated us to move ahead to take our flag to the new height. Thus, we also developed skill of leading the program-mme".

Nischal Ghimre, Captain of Equity, student from Swet Baraha school

This **fourth step** comprises promotional activities. All students, as per indicators, are divided into seven groups. Following that, different groups compete for activities related to 7FATS, targeting to raise their respective flags to full height and to eventually promote 7FATS in school. Also, as a part of the initiative, games, group handwashing, cultural programme, study tour, training, international days (toilet, hand washing, environmental day, etc.) are celebrated. Furthermore, in **the fifth step,** fund raising activities, like through Deusi Vhailo etc. are organised to support 7FATS in schools. Likewise, to promote and build momentum regarding **WinS**, to reinforce the desired behaviour, and to acknowledge accomplishment by teams and schools implementing 7FATS, a system of rewards and recognition is introduced as a **sixth step**. In this regard, for students, while cash prize is a motivational factor, the opportunity of singing a sanitation song during a

school assembly on Friday is yet another matter of pride. Finally, at **the seventh step**, when all seven flags have been raised up to full stand, the school is declared as 7FATS School.

Discussion

The 7FATS has been implemented in about 70 schools, but the progress and level of impact the initiative created varies. This is despite a concept paper, documentary (both in Nepali and English), introductory leaflet, and a 7FATS-WASH handbook that has been designed to standardise implementation[23]. Then, what made the difference? The performance of certain schools like, Jana Sewa Secondary School, and Mangal Secondary Schools both in Kritipur municipality were outstanding. It turned out that the former was the one where a WHO staff, who conceived the concept and developed the process, participated in launching the initiative, and conducted orientation session. Influenced by these schools, others in the same municipality adopted the approach and implemented 7FATS programme on their own initiative. It was the motivation that underlay the success exhibited in the school students and teachers who contributed their birthday money and planned for its use for the purpose of 7FATS programme.

Regular sanitation conferences at schools, where dignitaries and parents were invited, was another factor contributing to the success. During these conferences, guests would often donate in cash and kind that was, in turn, used to reward the good performing sanitation teams. Such locally generated resources and rewards was another factor that encouraged schools, administration, teachers, and students to get involved in forging total sanitation at schools.

Adoption of schools by the national and international organisations for implementing 7FATS programme is another factor contributing to the success of initiative. The Rotary Club of Patan and SNV Netherlands Development Organisation Nepal (SNV Nepal) convinced of the concept adopted schools for introducing 7FATS. The former, with the aim to improving WASH facilities in a comprehensive and sustainable manner supported 12 government schools in Lalitpur. The latter, on the other hand, supported 44 schools, located in 4 municipalities of 4 different districts, in implementing 7FATS approach.

Conclusion and Recommendations

The government of Nepal invested a huge budget, introduced legislation, developed policy, strategy, and plan like sanitation and hygiene master plan, 2011, School sector development plan (2017-2030), etc. It used different tools with support of development partners and made interventions like toilet construction to achieve ODF status, WASH in School, and developed an operational guideline. Yet, lack of motivation and commitment marred the sustainability and behavior change that was fundamental for total sanitation in schools. The 7FATS in schools approach integrates policy perspective with indigenous socio-cultural aspects into a school-level WASH programme. Seven indicators of total sanitation are used for measuring improvement by quantitative assessment of progress and rewarding and recognising the achievements. In doing so, 7FATS approach proved to be a powerful tool for driving school towards total sanitation in an integrated, effective, and sustainable manner.

However, for 7FATS in schools more useful, certain challenges need to be addressed. These include the availability of uninterrupted water supply, culturally sensitive promotional activities, resources for rewards and recognition, and continuity of focal teacher and students' leader to take up the captaincy and vice-captaincy roles. Further, it is imperative to integrate the initiative with on-going programmes and that a system of twinning between different schools for comprehensive partnership is established. To evaluate and determine health impact, arrangements be made to periodically monitor health status of students. And to catalyse, "One School, One Nurse" initiative implemented in Bagmati province public schools can be replicated, and to scale up, it is recommended to forge collaboration between ministries of: Water Supply; Education, Science and Technology; and Health and Population. Lastly, the local level municipality WASH coordination committee

need to develop monitoring and evaluation mechanisms.

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Appendix A:

Indicators	Sub-Indicators	Standards / Way of monitoring
1. Use of toilet	1.1. Toilets separate for boys and girls	One toilet per 25 girls and another for female staff; one toilet plus one urinal per 50 boys, and one for male staff
	1.2. Cleaning mechanism (How, where, who, when)	Routine cleaning and maintenance of toilets; and proper sludge/ sewage management.
	1.3. Enough water	For conventional flush toilets 10–20 litres/person/ day; for pour-flush toilets 1.5–3.0 litres /person/ day; and for anal washing 1–2 litres/person per day
	1.4. Hand washing facilities	Close by (within 5 meters) convenient hand-washing facilities in toilets
	1.5. Proper privacy and securety	Toilets located appropriately with access routes lit, if used at night
2. Hand washing and personal hygiene	2.1. Hygiene education	Hygiene education in school curriculum, and students practice basic hygiene tools
	2.2. Adequate hand washing facility	Water and soap available at all time; and students practice hand washing in a proper way
	2.3. Hand washing program	Group hand washing, Help A Child Reach 5 (HACR5) by lifebuoy, soap collection etc.
	2.4. Brushing teeth, nail and hair cleansing and cut	Physical observation and interview
	2.5. Body, cloth and personal behaviour	Physical observation and interview
3. Menstrual hygiene	3.1. Practice of un-touchability and/or School absence	Interview and observation
	3.2. Awareness/ Orientation activities	Interview and observation
	3.3 Presence of focal teacher	Interview and observation
	3.3. Availability and use of hygienic sanitary pad	Vender machine, free distribution of sanitary pad
	3.4. Safe disposal of sanitary pad	Non-burn technology like autoclave, microwave or deep burial method
4. Equity in WASH	4.1. Users (disable, child, girls) friendly WASH facilities	Users-friendly toilet, hand washing station and other facilities
	4.2. Discrimination by	Interview and observation

		cast/sex/religion	
		4.3. Safe water accessible to all	Interview and observation
		4.4. Clean toilet accessible to all	Interview and observation
		4.5. Fee, uniform/dress, and stationery affordable to all	Interview and observation
5.	Safe water	5.1. Sufficient quantity	5 litres per person per day for each child and staff
		5.2. Water from improved source	As per JMP definition drinking water protected from contamination
		5.3. Water Safety Plan	WSP report, tested and verified
		5.4. Centralized treatment system or PoU treatment	Observation / interview , compliance with NDW-QS- 2005
		5.5. Acceptable (all time)	Taste and odour of drinking-water acceptable to school children and staff
6.	Safe food	6.1. Lunch/ snacks in safe container	Interview and observation
		6.2. Heating facility at school	Interview and observation
		6.3. Safe food available at school	As per DFTQC inspection rules and regulation
		6.4. No unhygienic food sold in school premises and around	Non hygienic food such as pani-puri, chatpate, noodles
		6.5. Food prepared with safe water and raw materials	Safe water and safe raw ingredients used to thoroughly cook and store safely
7.	Clean Environment	7.1. Availability of adequate waste-bins	Solid waste collected from classrooms, kitchens, and offices daily and disposed safely
		7.2. Solid waste management	Application of solid waste management program like zero waste; waste is free of sharp objects and other physical hazards,
		7.3. Well maintained garden and playground	Physical observation
		7.4. Clean class rooms	Classrooms and other teaching areas are regularly cleaned to minimize dust and moulds
		7.5. Liquid waste management	Wastewater is disposed off quickly and safely

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