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FOR ALL IN A FAST CHANGING WORLD****WASH in rural Cambodian primary schools: roles,
responsibilities, attitudes and priorities of key stakeholders***A. Shantz, O. Ham, M. MacLeod, S. Chee & R. E. Cantwell, Cambodia***BRIEFING PAPER 1951**

A sustained and sufficient school water, sanitation, and hygiene (sWASH) environment consisting of strong WASH facilities, services, and practice is very important for student health and to reduce absenteeism. A strong sWASH environment may be associated with various contextual, institutional, and psychosocial factors internal to school governance, management, and decision-making. To address a knowledge gap and to inform future design and implementation of sWASH programs in Cambodia, an innovative and comprehensive cross-sectional study of 24 rural primary schools was completed to understand the roles of key players in sWASH in Cambodia, while also examining the decision-making processes and priorities at leadership levels. Our findings suggest the sWASH context in Cambodia is diverse and complex. Satisfaction with current sWASH services is low, even in cases of recent government or non-government organization intervention. School directors have ideas to improve WASH facilities and services and have identified these as priorities. Funding is scarce, and roles and responsibilities are shared among key stakeholders.

Introduction

Water, sanitation, and hygiene (WASH) remain public health challenges in developing countries around the world. Millions of school days are lost annually as a result of illness, especially diarrhea (Alexander et al. 2013). Schools are a setting where messages on proper water, sanitation, and hygiene can be introduced and reinforced (Xuan et al. 2013). Additionally, schools have the potential to serve as models for students and communities. However, WASH infrastructure is costly and typically beyond the means of schools in many developing countries such as Cambodia where budgets are low (Freeman et al. 2010).

A sustained and sufficient sWASH environment consisting of strong WASH facilities, services, and practices may be associated with various contextual, institutional, and psychosocial factors internal to school governance, management, and decision-making.

Contextual factors. Each school facility has its own unique geographic context, and with it, different social norms, cultural behaviours, and societal expectations. In the context of sWASH, this relates to expectations and accepted habitual practices associated with drinking water, defecation and urination, and hygiene. In addition to these societal factors, individual schools may differ in their ability to obtain materials and supplies from the marketplace, access to construction and maintenance services, and feasibility and access to water supply options.

Institutional factors. Institutional factors play a large role in how sWASH is managed and addressed. Firstly, the school director and leadership team are responsible for managing the many priorities at a school, including determining how much focus, time, and resourcing are allocated to WASH-related initiatives. Schools are provided with budgets that are commonly insufficient for meeting the school's basic needs – such as drinking water and sanitation. Additionally, low salaries do not always attract the best candidates for teaching and administrative positions, and with that, potentially poor oversight, accountability, and motivation can result. Budgets may not be present or sufficient for routine services such as water treatment and hygiene facilities, consumables, or the contracting of technical services.

Donors and non-government organizations are working in many developing countries to resolve issues of sWASH governance, financing, management, and of course, infrastructure. While a common intervention is to provide hardware support, this is often insufficient on its own, as schools may not have the financial mechanisms or willingness to sustain the hardware once external support ends (USAID & Rotary International 2013). Communities may also play an external role at the school in some settings, including monitoring and advocacy (Eneas de Silva 2012).

Psychosocial factors. Various psychosocial factors may also affect to sWASH performance and psychological theories studied in the context of household water treatment are also applicable in the school context. These theories suggest that the formulation of intentions (in this case, to make sWASH a priority and take action to improve it), developing routines, setting up reminders, and making commitments visible to the public may increase the likelihood of achieving the intended behaviors (Eneas de Silva et al. 2012).

In Cambodia, officers at national, provincial, and district levels are responsible for overall administration and oversight of the schools within their jurisdiction. It is at these administrative levels that policies from the national level are conveyed and funding, budgets, and work plans are developed. Various key players (most notably directors and teachers) may be responsible for sWASH performance at a particular school, each with specific roles and responsibilities. The research seeks to understand how factors internal to the school institution might be associated with strong WASH facilities, services and practice in schools.

Objectives

The study objectives were to (i) understand the roles of key players in sWASH in rural primary schools in Cambodia, (ii) examine the decision-making processes and priorities at leadership levels and (iii) identify associations with strong WASH facilities, services and practice in schools.

Materials and methods

A cross-sectional study was conducted in two provinces in rural Cambodia in September 2013. Six provinces where Samaritan's Purse and Clear Cambodia work were eligible for the study. For the logistics of the field work to remain feasible under the available budget and timeframe, geographical clustering of selected schools was employed. Additionally, multiple provinces and districts needed to be selected to ensure representativeness and geographic and socio-economic diversity. Therefore it was agreed that two of the six provinces would be selected, and within each province, two different districts. In total, 24 schools were selected with stratified sampling employed across two study groups.

- Group 1. Schools representative of the target population (n=16)
- Group 2. Schools selected by the regional government as having strong sWASH performance (n=8)

The Department of Education, Youth, and Sport (DoEYS) recommended five primary schools in each district with high sWASH performance. This was defined as schools excelling at providing sustained access to drinking water, hand washing, and latrines including strong usage practices. Two of the five recommended primary schools were randomly selected.

The group 1 'typical' schools were identified from a list of all primary schools in the four selected districts provided by DoEYS. Four of these 16 schools had participated in the Clear Cambodia program within the past 12 months.

Measurement of explanatory variables and outcomes

Resources created by the Center for Global Safe Water at Emory University were adapted to produce data collection tools for this study (Freeman et al. 2010). The tools were designed to gather information on roles and responsibilities of key players, prioritization and decision-making, sWASH performance, and factors that may be associated with sWASH performance. Four different surveys utilizing quantitative and qualitative methods were designed:

1. Key Informant Interview (KII) – School Director
2. sWASH visual observations
3. Focus Group Discussion (FGD) – Teachers
4. FGD – Students

All surveys were originally designed in English then translated into Khmer. A reverse translation from Khmer back to English was conducted independently to verify accuracy and identify errors.

KII – School Director

The purpose of KIIs with school directors was to determine roles and responsibilities related to sWASH, summarize existing WASH facilities, services, and practices, and determine contextual, institutional, and psychosocial factors that may be associated with sWASH performance. This assessment was also focused on leadership, prioritization, decision-making, budgeting, and planning for sWASH.

Visual observations

Visual observation questionnaires were used to measure the existence and status of sWASH facilities and their functionality. Functionality and cleanliness checklists were employed for water supplies, latrines, water treatment, and hand washing stations.

FGD – Teachers

The purpose of conducting FGDs with groups of school teachers (at least three teachers per group) was to obtain or confirm information on sWASH curriculum, routines associated with sWASH services and practices, and roles and responsibilities of key players.

FGD – Students

Student FGDs were completed to obtain or confirm information on sWASH education and training, routines associated with sWASH services and practices, perceptions of good sWASH practices, and desire for improved sWASH facilities, services, and practices. A minimum of six students (at least three girls and three boys) were recruited for the discussions.

Results and discussion

General school information and sWASH background

School sizes ranged from 63 to 869 students with an overall median of 270 students. Student to teacher and classroom ratios were high in some schools with as many as 68 students per teacher. Donors and government appear to be very active in sWASH activities in recent years with more than half of surveyed schools receiving some form of intervention in each of the four areas of water supply, drinking water treatment, latrines, and hand washing (see table 1).

Intervention area (in the past 5 years)	Yes	No
Water supply	15 of 24 (62.5%)	9 of 24 (37.5%)
Drinking water treatment	18 of 24 (75%)	6 of 24 (25%)
Latrines and sanitation	14 of 24 (58.3%)	10 of 24 (41.7%)
Handwashing	8 of 24 (33.3%)	16 of 24 (66.7%)

sWASH components

Various sWASH components were analyzed to examine gaps in the study population of schools and to inform future design and implementation of sWASH programs in the Cambodian context. Few schools were able to supply drinking water at all times, a sufficient number of latrines (scaled for the school population), and soap at hand washing stations or areas. While treated drinking water is provided at most schools, it is rarely consistently available and it is still very common for students to bring drinking water from home. Latrines were typically present and functional, but insufficient in quantity. Students per latrine ratios were

high, with the median (62 students per latrine) being above the UNICEF guidelines (25 and 50 students per latrine for girls and boys, respectively). This demonstrates a significant need for additional latrines at most schools. Additionally, hand washing stations or dedicated areas were not available at many schools and soap was rarely present.

sWASH performance satisfaction and roles & responsibilities

Satisfaction among school directors towards their sWASH situation was generally low (at least 71% dissatisfied) for all sWASH components – but most of all for hand washing (83% dissatisfied). This indicates a large gap between the assistance provided by donors, government, and schools themselves, and the requirements to initiate and sustain suitable and satisfactory sWASH services. External activities and interventions alone may be insufficient to meet the needs at schools. However, it is not known whether the activities themselves are the problem or whether it is the environment to ensure their proper use and sustainability.

Table 2 presents roles and responsibilities for key sWASH tasks from the perspective of teachers at each school. School directors are typically most responsible for the management of the water supply and latrines, and if made available for students, the provision of soap supplies. Teachers are involved in most sWASH responsibilities, but most commonly for instructing the students about hand washing and managing the latrines and water supply. Student groups play a key role in sWASH management at the schools and most importantly, cleaning and management of the latrines. At most schools, sWASH tasks are assigned to student teams or groups rather than all students. However, such groups may rotate to ensure participation by all students.

	School Director (%)	Head Teachers (%)	All Teachers (%)	Student Groups (%)	All Students (%)
Management of water supply	96	39	87	87	30
Management of drinking water treatment	65	35	70	74	39
Maintenance & cleaning of water treatment	57	35	65	74	43
Management of latrines	83	39	87	91	30
Cleaning of latrines	43	35	78	96	39
Instructing students to wash their hands	30	39	91	13	N/A
Ensuring soap is available	78	26	78	N/A	9

Only 21% of school directors reported that the surrounding community was active in sWASH issues at the school. For those that were active, maintenance of infrastructure was their primary role.

Decision-making and prioritization

Key stakeholders in the rural school setting have many responsibilities in addition to those related to sWASH. In addition, school leadership has many issues and responsibilities that they must prioritize. Table 3 presents a list of key issues relating to school management and their respective average priority ranking based on responses from school directors.

Table 3. School director priorities (1 is highest priority)	
Issues & Topics	Average Ranking
Annual planning	3.3
Administration with municipal, provincial & national government	4.8
Student health programs	4.8
Drinking water for students	5.7
Toilets for students	6.0
Managing and supervising teachers	6.4
Student textbooks and learning materials	6.4
Quality of education for students	6.5
Hand washing for students	6.7
School building maintenance and environment	7.1
Activities and games for students	8.4

Drinking water and latrines rank highly on the priority list for school directors. Notably, hand washing is near the bottom of the list of priorities. Annual planning, administrative duties with the government, and student health appear to be issues of greater perceived importance than sWASH at rural schools.

Funding utilized for sWASH typically came from the general school budget and for some schools, from specially-allocated government funds or the surrounding community. However, total funds available for sWASH were found to be low with a median of \$60 per school per year. This small budget may be insufficient to meet the basic sWASH needs at the schools and address issues of maintenance and rehabilitation of infrastructure. Funds were typically spent on small purchases such as soap, taps/containers, cleaning supplies, and small repairs to infrastructure.

Nearly all school directors had plans to improve their water supply, water treatment, latrines, and hand washing. This potentially demonstrates the need and desire to achieve basic levels of service for the students. However, sWASH performance was found to vary significantly across the 24 schools based on a set of indicators used.

School directors typically have ideas or plans for how their sWASH services could be improved. However, their ability to act on these plans or desires may be impaired by a variety of factors such as finances. If plans to invest or improve are an indication of priority, the key sWASH priorities are drilling new wells, fixing existing wells, buying more water filters, building more latrines, fixing existing latrines, and building hand washing stations.

Knowledge on WASH concepts appears to be generally strong among students at rural schools. Students had a good understanding of how to make drinking water fit for consumption and were aware of the linkages between latrines and hand washing to health. Also, a high proportion of school students connected the concept of bacteria to hygiene and sanitation. However, knowledge about never practicing open defecation could be reinforced. Teaching the proper techniques for washing hands was reported at the minority of schools and this could also be highlighted in any curriculums that are developed.

The aforementioned factors and variables were examined in comparison to sWASH performance for positive or negative associations. However, no significant correlations were found – perhaps due to the

small sample size of the study or due to the complexities surrounding sWASH performance not being easily captured by a comparison with a single variable.

Learning points

Various sWASH components were analyzed to examine gaps in the study population of schools and to inform future design and implementation of sWASH programs in the Cambodian context. Student knowledge of drinking water, latrines, and hand washing was strong – however the frequency of messages for always using latrines for defecation and the proper technique for hand washing could be improved. Few schools were able to supply: drinking water always; a sufficient number of latrines scaled for the school population; and soap at hand washing stations or areas. This indicates that infrastructure gaps remain even after over a decade of strong support from external agencies.

sWASH implementers should include school directors, teachers, and student groups in any future sWASH promotion program. While all sWASH components are typically in need at rural schools, hand washing may be most neglected by school leadership. Any new program must carefully consider the limited budgets available for sWASH activities and how this may influence sustainability and long-term impacts.

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References

- Alexander, K., Dreibelbis, R., Freeman, M., Ojeny, B., & Rheingans, R. (2013). Improving service delivery of water, sanitation, and hygiene in primary schools: A cluster-randomized trial in western Kenya. *Journal of Water and Health*. 12 (2), 1-13.
- Eneas de Silva, F., Heikkila, T., Assis de Souza Filho, F. and Costa de Silva, D. (2012) Developing sustainable and replicable water supply systems in rural communities in Brazil. *The International Journal of Water Resources Development*.
- Freeman, M.C., Saboori, S., Porter, S. and Rheingans, R. (2010) *Assessing the sustainability & effectiveness of school WASH projects: a toolkit*. Atlanta, GA, USA: Center for Global Safe Water at Emory University.
- USAID & Rotary International. (2013). Sustainability index of WASH interventions: Global findings and lessons learned. International H2O Collaboration.
- Xuan, Le., Rheinlander, T., Hoat, L., Dalsgaard., & Konradsen, F. (2013). Teaching handwashing with soap for schoolchildren in a multi-ethnic population in northern rural Vietnam. *Global Health Action*, 6, 20288

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