

Implementation of Water, Sanitation and Hygiene in Schools Program in Camarines Sur

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WASH in Schools, WinS Program, water access, sanitation, hygiene, deworming health education

Abstract. Water, Sanitation, and Hygiene in Schools (WinS) Program is one of the six flagship programs of Oplan Kalusugan sa Department of Education. The School Health Section of DepEd Camarines Sur cascaded the policy and guidelines for the WinS Program in 2017 through capacity development for school administrators. However, after seven years of implementation, reports revealed that public schools' water, sanitation, and hygiene (WASH) situations remain poor and deficient. This descriptive study aimed to assess the extent of implementation of the WinS Program in public elementary and secondary schools of Camarines Sur province. Data was collected from a convenient sample of nurses (n = 67), school administrators (n = 158), and teachers (n = 152) from 158 public schools in Camarines Sur using the WinS Program Survey Form. Majority of the schools are public elementary schools; with a population of less than 500 learners; with Php500,001 to Php1,000,000 annual budget allocations and less than 50 school employees. Mostly belong to the fourth congressional district of Camarines Sur and headed by School Principal I. The extent of WinS Program implementation in terms of hygiene, water access, and sanitation was found to be moderately implemented; while deworming and health education were fully implemented in public schools. While some progress has been made in hygiene, water access, and health education, gaps remain due to limited resources and growing student populations. Aligning budgets, personnel, and infrastructure with program needs, along with collaborative efforts and ongoing monitoring, is crucial to achieving better health and learning outcomes for learners.

Introduction

Reports show that, 2.2 billion people lack access to safely managed drinking water services, and 4.5 billion people lack safely managed sanitation services (World Health Organization, 2022). Nearly 36 percent of the world's population do not have access to a clean latrine for waste disposal. Unsafe and perilous hygiene practices are widespread, compounding the effects on people's health (Center for Disease Control, 2022). In Asia, 83 billion people, or four percent of the population, mostly the poor, are estimated to practice open defecation. Huge strides have been made in recent years, but over 500 million people still do not have access to proper sanitation facilities. Around 130 million are unable to access safe water (United Nations, 2022). A person without access to improved drinking water, for example, from a protected borehole well or municipal piped supply, is forced to rely on sources such as surface water, unprotected and possibly contaminated wells, or vendors selling unverifiable provenance and quality (National Academy of Sciences, 2021).

In the Philippines, 24 million Filipinos lack improved sanitation (United Nations Children's Fund, 2021). Schools in poor communities are the least served. The survey conducted by the Department of Education (DepEd) in 2021 showed that more than 7,000 primary schools in the country have no steady water source and more than 90,000 school toilets need to be constructed to meet the basic standard. In Bicol region, 1,034 have no access to safe and clean water source. Almost 25 percent of these schools do not have functional toilets and hand-washing facilities. Based from the Enhanced Basic Education Information System (2021), the toilet bowl to student ratio is 1:78 which is far beyond the prescribed ratio of 1:50. A 2021 review by the School Health Section of DepEd Camarines Sur revealed that 458 out of 1,086 schools rely on

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natural sources of water. Water qualities were not properly tested as recommended and potable drinking water was not regularly available for learners. Solid waste management was a major concern as well. Nearly half of the public schools in Camarines Sur showed no regular collection of waste in their municipalities (DepEd, 2021). This study aimed to assess the extent of implementation of the WinS Program in public elementary and secondary schools in Camarines Sur and to identify the key bottlenecks affecting its effective and sustainable delivery. Moreover, this will serve as a catalyst to increase collaboration among DepEd stakeholders for innovation, cost-effectiveness, and sustainability of WASH in preparation for the safe re-opening of schools. With this research, every public school in Camarines Sur is hoped to be transformed into a habitat for learning, that is, clean, protective, motivating, and enabling, so that every Camarinesense learner will be safe, healthy, and fit to learn.

Methodology

This study employed descriptive quantitative research. The DepEd WASH in Schools survey form was used in gathering the data from 377 respondents which were composed of 67 nurses, 152 teachers and 158 school administrators from public elementary and secondary schools in Camarines Sur. The number of schools were identified using Slovin's formula from a total of 249 public schools. The school administrators and teachers are the main prime movers of the program. They are tasked to implement WASH interventions in public schools. Meanwhile, the nurse respondents were DepEd nurses who are in charge of monitoring and providing technical assistance to the school level implementers.

Results and Discussion

Out of 158 schools, 46 or 29 percent are from the fourth congressional district; 31 or 20 percent belong to the third congressional district; 30 schools or 19 percent are from the fifth congressional district; the second congressional district consists of 29 schools or 18 percent; and only 22 schools represent the first congressional district constituting 14 percent of the total number of participating schools. Ninety or 57 percent are public elementary schools while 68 or 43 percent are public secondary schools. Thirty-six schools or 23 percent have 500 or less officially registered learners for school year 2021-2022, 26 or 16 percent with 501 to 1,000 as well as 1,501 to 2,000, 15 or 23 percent with 1,001 to 1,500 and 2,001 to 2,500 learners, 14 or 9 percent have more than 3,000 learners, and 10 or six percent have 2,501 to 3,000 learner population. Most of the schools belong to the bracket of Php500,001 to Php1,000,000 annual budget allocation with 46 or 29 percent. Forty-one schools or 26 percent fall within Php100,000 to Php500,000, 30 or 19 percent with Php1,500,001 to Php2,000,000, 28 or 18 percent with Php1,000,001 to Php1,500,000 and 13 or 8 percent with more than Php2,000,000 annually. Nearly one-third of the schools were headed by School Principal I with 47 or 30 percent, 36 or 23 percent by Teacher-in-Charge, 33 or 23 percent by School Principal II, 14 or 9 percent by Head Teacher I, 12 or 7 percent by Head Teacher II, 9 or 6 percent by School Principal III and 7 or 4 percent of the schools were headed by School Principal IV. Most of the schools have 50 or less school employees with 62 or 39 percent, 39 or 25 percent with 51 to 100, 28 or 18 percent with 101 to 150, 19 or 12 percent with 151 to 200, and lastly, 10 or 6 percent have more than 200 school employees.

| | Frequency | Percentage |
|---------------------------------|-----------|------------|
| Congressional District | | |
| First | 22 | 14 |
| Second | 29 | 18 |
| Third | 31 | 20 |
| Fourth | 46 | 29 |
| Fifth | 30 | 19 |
| Level | | |
| Elementary | 90 | 57 |
| Secondary | 68 | 43 |
| Learner Population | | |
| ≤500 | 36 | 23 |
| 501-1000 | 26 | 16 |
| 1001-1500 | 23 | 15 |
| 1501-2000 | 26 | 16 |
| 2001-2500 | 23 | 15 |
| 2501-3000 | 14 | 9 |
| >3000 | 10 | 6 |
| Annual Budget Allocation | | |
| Php100,000 – Php500,000 | 41 | 26 |
| Php500-001 - Php1,000,000 | 46 | 29 |

| | | |
|---|------------|------------|
| Php1,000,001 - Php1,500,000 | 28 | 18 |
| Php1,500,001 - Php2,000,000 | 30 | 19 |
| >Php2,000,000 | 13 | 8 |
| Position Title of School Administrator | | |
| School Principal I | 47 | 30 |
| School Principal II | 33 | 21 |
| School Principal III | 9 | 6 |
| School Principal IV | 7 | 4 |
| Head Teacher I | 14 | 9 |
| Head Teacher II | 12 | 7 |
| Teacher-in-Charge | 36 | 23 |
| Number of School Personnel | | |
| ≤50 | 62 | 39 |
| 51-100 | 39 | 25 |
| 101-150 | 28 | 18 |
| 151-200 | 19 | 12 |
| >200 | 10 | 6 |
| Total | 158 | 100 |

Table 1. Frequency and percentage distribution for school profile.

Deworming and health education were implemented in public schools which acquired an average weighted mean of 3.42 and 2.80 respectively. Hygiene, water access and sanitation program were the bottom three which garnered an average weighted mean ranging from 2.35 to 2.49. Bringing bottled drinking water to school is a common practice of the learners since not all schools have access to clean and potable water. Most of the schools established rain catchment and water reservoir facilities to augment the shortage of water supply. Generally, the safety of drinking water is undefined since most schools rarely test its quality. Also, water treatment practices such as filtration and chlorination were uncommon. These findings were consistent with the observations made by the researcher during the school inspection. The scarcity of water supply is one of the major problems noted in public schools, especially those that are in remote communities where water systems are limited or inaccessible. Some of the schools have piped water systems, however, insufficient, and mostly, at risk of contamination. Other sources of water were available such as jetmatic pump wells but some of these were already damaged and no longer functional. Other schools resorted to using natural sources of water such as rivers, seas, and lakes. Some use alternative sources like rain catchment; however, the water supply was still deficient, especially during hot summer days. These observations are similar with the findings of Vally et al. (2019), who reported that although schools may have existing water sources, the supply is often insufficient and unreliable, with some schools relying on wells that run dry or are prone to contamination.

| Indicators | Average Weighted Mean | Verbal Interpretation | Rank |
|------------------|-----------------------|------------------------|------|
| Water access | 2.46 | Moderately implemented | 4 |
| Sanitation | 2.35 | Moderately implemented | 5 |
| Hygiene | 2.49 | Moderately implemented | 3 |
| Deworming | 3.42 | Implemented | 1 |
| Health Education | 2.80 | Implemented | 2 |

Table 2. Appraisal of the respondents on the extent of WinS Program implementation

When it comes to sanitation, most of the public schools in Camarines Sur promote proper solid waste management. More than half of the respondents reported having segregated trash bins in every classroom and other strategic places like school clinics, play areas, canteens, and gardens. Compost pits for biodegradable wastes, refused pits for non-biodegradable wastes, and materials recovery facilities for recyclable wastes were evident as well. However proper segregation of waste is a bottleneck. Reusing and recycling of waste was observed especially in elementary schools. Plastic bottles and old car wheels were installed in school gardens as alternatives to plant containers. However, it was noted that garbage collection by the Local Government Unit or barangay council was irregular and sometimes lacking due to the absence of dumping sites or damaged garbage truck collectors. As a result, some schools resorted to burning their wastes although this practice is

strictly prohibited by law as mandated by Republic Act No. 9003, otherwise known as the Ecological Solid Waste Management of 2000. The functionality ratio of toilets to learners as prescribed by DepEd is 1:50. This means that a small school with 500 learners should have at least 10 functional toilets. Nevertheless, based on the findings of this study, the toilet bowl-to-learner ratio is 1:65, still beyond the national standard. Gender-segregated and PWD-friendly toilets were inadequate and the presence of stagnant water is apparent both in elementary and secondary schools. Cleaning materials and wrapping paper for used sanitary pads were insufficient. Consequently, some of the toilets were unsanitary and malodorous. These findings are supported by Duijster et al. (2020), who emphasized that the effectiveness of school-based WASH programs depends not only on the presence of hygiene activities but also on the availability, functionality, and maintenance of sanitation facilities and supplies.

Nearly half of the food handlers affiliated with schools were already trained and oriented on safe food handling, yet only a few have secured health certificates and sanitary permits. Also, not all food servers wear proper attire such as an apron, mask, hairnet, and gloves. These correspond with the researcher's observation wherein most of the food handlers in the schools she visited did not comply with the necessary requirements. Udto (2022) recommends the importance of regular monitoring and inspection of the practices of food staff particularly in their personal hygiene and wearing of proper uniforms aside from a series of training on improved food safety practices to ensure that the food and beverages being served in school are safe and free from contamination.

The availability of functional handwashing and tooth-brushing facilities and supplies significantly influences the learners' ability to wash their hands when needed and to practice oral hygiene regularly. Although the budget allocation for WASH supplies and funding for repair and maintenance of WASH facilities and infrastructures from the school MOOE is limited, schools mobilize their resources from private donors and external stakeholders like the PTA. However, the budget was still inadequate leading to an irregular supply of soap, toothbrushes, toothpaste, and cleaning materials. Dilapidated and damaged WASH facilities remain unrepaired as well. During the interview, many of the respondents affirmed that most of the time, teachers are the ones providing the learners' hygiene kits such as soap and hand sanitizer just to make sure their hands are clean especially before eating and after using the toilet. These findings are consistent with the study of Sangalan et al. (2022), which emphasized that effective school-based WASH interventions require not only health education but also the provision of hygiene supplies and improvement of WASH facilities to support behavior change. The absence or limitations in terms of water supply, soap, and functional facilities can hinder the effectiveness of interventions aimed at improving handwashing practices among learners.

Chouhan et al. (2022) identified that the availability of WASH supplies such as soap was among the major problems in schools. This jeopardized the effort to promote use, resulting in a truncated proportion of learners washing their hands with soap. Lopez (2021) purported that children with access to handwashing materials were three times as likely to consistently wash their hands before eating and after toilet usage. Therefore, good handwashing practices must be supported and sustained with consistent and reliable access to water and adequate supplies of soap. Saboori, Mwaki, and Rheigans (2020) suggest that prioritizing the funding and implementation of integrated packages to include hygiene interventions in schools and communities is an important part of creating long-term change in infrastructure, health, and education systems.

Moreover, the majority of the schools implemented menstrual hygiene management such as the provision of sanitary pads and information materials about feminine hygiene. However, rest space for female learners and wrapping materials and disposal systems for used sanitary pads were not available in almost all schools. During one of the inspections conducted, improper disposal of used sanitary pads was observed in a secondary school. The study by Sommer et al. (2021) showed that even though most primary schools provided sanitary pads, menstrual hygiene management (MHM) was still not adequate. In many schools, girls had explicitly to ask an adult to provide them with a sanitary pad, and disposal facilities were not present in the toilet cubicles or even in the washrooms (Patel et al., 2022).

In terms of deworming, almost all schools conducted mass deworming activities, if consent was signed by the learner's parent or guardian. However, it was revealed that the deworming tablet supply was insufficient in some schools which substantially impacted the program's outcome. Based on the recent School Health Section's consolidated deworming report, the result for the school year 2020-2021 was only 74 percent, 11 percent below the national target. During the interview, some of the parents, learners, and even teachers conveyed negative beliefs and attitudes towards the program despite the intensified information dissemination campaign. Mation et al. (2021) agreed that misconceptions about the mass-drug administration strategy and lack of support from teachers giving deworming tablets still exist as barriers to STH control

efforts. Hence, the nurse or clinic teacher plays a crucial role in educating the teachers, parents, and learners about the importance of semi-annual deworming. Based on the data gathered, it revealed that hygiene and sanitation education is supplied in all schools, but the quality of education is a bottleneck. De los Trinos et al. (2021) suggest that a solution is supporting the teachers to improve the delivery of hygiene and sanitation education. Learners need to be able to practice good hygiene both at home and at school to keep them healthy. Babatunde (2021) recommends that health education should be made mandatory for all learners to empower them to develop positive healthy behaviors.

Moreover, data also revealed that the respondents have always encountered many challenges or key bottlenecks which substantially impede the success of program implementation. It was evident during school inspection that policies and targets on WASH in schools are mostly in place, but these are diverse and often neglect critical WASH aspects such as the creation of School WinS TWG. Enforcement mechanisms are not always well established, and plans are often not fully implemented and financed as evidenced by unrepaired WASH facilities and irregular supply of WASH materials, especially soap, toothbrushes, and toothpaste. The legal framework of the program is complex and spreads responsibilities, thus compromising accountability, coordination, and compliance. Communication and formally established coordination systems are not always efficient. Leadership on WASH in schools is often weak, as WASH in schools is not considered an education intervention. Coverage and the WASH aspects considered may vary, with sanitation less prioritized than water and hygiene. Successful implementation is observed associated with active participation of the school community, which fosters improvement in cleanliness and maintenance, promoting healthy behaviors and disease prevention.

| Indicators | Weighted mean | Verbal Interpretation | Rank |
|--|---------------|-----------------------|------|
| 1. Logistical and funding requirements | 4.00 | Always | 2.5 |
| 2. Operations and maintenance | 4.00 | Always | 2.5 |
| 3. Constantly increasing school population | 4.00 | Always | 2.5 |
| 4. Coordination among DepEd partners, LGUs, and communities | 3.56 | Always | 11 |
| 5. Lack of community support | 3.08 | Often | 16 |
| 6. Disparity in WASH coverage | 3.60 | Always | 9 |
| 7. Appropriateness of WASH structural design | 3.82 | Always | 7 |
| 8. Lack of knowledge about WinS policy and guidelines | 2.70 | Often | 18 |
| 9. Lack of knowledge about WinS Online Monitoring System | 3.33 | Often | 14 |
| 10. Inadequate WASH facilities and supplies | 3.92 | Always | 6 |
| 11. Hygiene knowledge ≠ practice | 3.35 | Often | 13 |
| 12. Low value/priority given to WASH | 3.59 | Always | 10 |
| 13. Lack of ownership and accountability for WASH in schools | 3.77 | Always | 8 |
| 14. National standards too high/difficult to achieve | 3.94 | Always | 5 |
| 15. Ineffective leadership | 3.50 | Always | 12 |
| 16. Lack of promotional activities | 2.51 | Often | 19 |
| 17. Lack of training about WinS Program | 3.16 | Often | 15 |
| 18. Ineffective monitoring and evaluation scheme | 3.02 | Often | 17 |
| 19. Sustainability of implementation | 4.00 | Always | 2.5 |
| 20. Legislation and Policy | 2.22 | Sometimes | 20 |

Table 3. Challenges Encountered in implementing the WinS program

These findings are consistent with the review conducted by Jasper et al. (2020) which revealed that poor planning and coordination, inadequate funding, and low technical capacity are the key barriers to achieve the intended objectives of the program. The study recommends stronger and coordinated stakeholder partnerships with clearly defined roles including cost sharing. Government and other stakeholders should also consider the impact of increasing funding for both software and hardware components to improve the enabling environment, and to develop a standardized monitoring mechanism for sustainable school water, sanitation, and hygiene (O'Connell et al., 2022).

Further, inadequate financing and budgeting have been named by the respondents as a key barrier to integrating successful and sustainable WASH programs into school settings, specifically, funding for WASH infrastructures (construction and repair), monitoring, and budget for WASH supplies, IEC materials, and hygiene promotion. Disparities in coverage and toilet functionality ratio were also highlighted as hindering factors due to the increasing learner population every school year. Increasing enrollment rates were not sufficiently accompanied by the provision of WASH facilities. The previous design for the construction of schools did not demand WASH facilities and hence, most of the public schools lacked access to WASH. As an educational institution, the roles of the teachers are crucial in attaining the key objectives and goals of the program.

Conclusion and Recommendations

In conclusion, majority are public elementary school learnersthe schools have less than 50 school employees; headed by School Principal I; with Php500,001 to Php1,000,000 annual budget allocation; belong to the fourth congressional district of Camarines Sur; and have less than 500 learner population. The extent of WinS program implementation in terms of hygiene, water access and sanitation was perceived by the respondents as moderately implemented while deworming and health education were implemented in public schools. The most pressing challenges identified include logistical and funding constraints, issues in operations and maintenance, a continually increasing learner population, and sustaining implementation over time.

Access to water, sanitation, and hygiene is a basic human right. Yet WASH remains a major global issue that needs to be addressed. This study was focused on the implementation of WASH in public schools in the province of Camarines Sur. Water, Sanitation, and Hygiene in Schools is a school-based program under Oplan Kalusugan sa DepEd designed to promote correct hygiene and sanitation practices through hygiene and sanitation education and the to guarantee provision of standards for safe water supply and appropriate sanitation facilities. It can be deduced from the findings that it is necessary to put in place adequate and specific training programs to overcome the challenges encountered by program implementers. It is also necessary to integrate the WinS policy in the K to 12 curricula and to establish a partnership with government and non-government organizations to finance the program which will address the problem with maintenance and sustainability.

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Competing Interests Statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study; all data used were obtained from previously published sources as cited in the reference list.

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Appendices

No appendices are attached to this study.