

博士論文

**Evaluation of School Health and Nutrition Program in
Nepal**

ネパールにおける学校保健栄養プログラムの評価

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Abbreviations

COREQ: Consolidated criteria for reporting qualitative research

DEO: District Education Office

DHO: District Health Office

FCHVs: Female community health volunteers

FRESH: Focusing Resources on Effective School Health

GSHS: Global School-based Health Survey

HBSC: Health Behavior in School-aged Children

HPS: Health promoting schools

INGO: International non-governmental organizations

MOE: Ministry of Education

MOH: Ministry of Health

NDHS: Nepal Demographic and Health Survey

NGO: Non-governmental organization

NHRC: Nepal Health Research Council

NGO: Non-governmental organizations

NSHP: National School Health Policy

JICA: Japan International Cooperation Agency

SMC: School Management Committee

SEM: Structural equation model

SHN: School health and nutrition

UNICEF: United Nations Children's Fund

UNESCO: United Nations Educational, Scientific and Cultural Organization

USAID: United States Agency for International Development

WHO: World Health Organization

Abstract

Background:

School health and nutrition (SHN) program is a cost-effective intervention in helping students achieve health literacy, enhance their health-related behaviors, and improve health status. The evidence is scarce on SHN programs, particularly in resource-limited countries. Moreover, no study has yet focused on the sustainability of SHN program. This study thus aimed to evaluate if SHN program activities and its effects were sustained in schools of Nepal. Therefore, this study has two objectives: (1) To determine the association of students' SHN program activities recognition/ utilization on their health outcomes, one year after the pilot SHN program completion, and (2) to analyzed stakeholders' perceptions of SHN program implementation, its impact, challenges and sustainability.

Methods:

This study included a quantitative and qualitative study. In the quantitative study, I included 604 students from six schools with the SHN program and 648 students from six other schools without the program in four districts of Nepal. In the qualitative study, I conducted 32 key informants' interviews of the actively involved SHN program implementers in Nepal.

Results:

In the quantitative study, students from the SHN program group reported decreased odds of worm infestation (AOR=0.50, 95% CI: 0.34 to 0.75) and diarrhea/ dysentery infection (AOR=0.67, 95% CI: 0.47 to 0.97) compared to the students in comparison group even one year after the pilot SHN program completion. In the qualitative study, all the key informants appreciated the program for its positive impact on students, schools, and communities. However, they also identified a lack of coordination between stakeholders, lack of resources, limited training opportunities as key impediments in SHN program implementation and its sustainability.

Conclusion:

This study overall evaluated SHN program implementation and its sustainability in schools of Nepal. It provided a comprehensive picture and deeper understanding of the linkage between the SHN program implementation, its impact, challenges and sustainability. Overall, the study showed that if SHN program activities if implemented comprehensively and sustainably, they might have sustainable positive impact on students' behavior change and health outcomes. However, several operational barriers existed to implement the program and for its sustainability.

Keywords: School, school students, School Health and Nutrition program, school health services, health status, implementation, impact, challenges, Nepal

Chapter 1: General introduction

1.1 Background

1.1.1 School as the medium for health promotion

School is one of the important institutions in the community (1) and is the place where many people in almost every community learn (2). It is an efficient medium to promote the health of school-aged children (2-6). It is an important platform where education and health can be integrated. According to the World Health Organization (WHO), effective school health programs are cost-effective interventions, which can improve the quality of education and health simultaneously. Such programs have the potential to help students achieve health literacy, enhance their health-related behaviors, and thereby improve their health status (7-10).

Over the years, the school health program has advanced from classroom-based health education to a comprehensive and integrated approach. It has focused on school health policies, life skills-based health education, health services, and a supportive school environment for health promotion (11, 12). In 1995, WHO launched a Global School Health Initiative and advocated for improved school health (13) to improve the health of students, school personnel and members of the community by increasing the quantity and quality of 'Health-Promoting Schools' (HPS) (13, 14). Similarly, in 1995 United Nations Children's Fund (UNICEF) developed the framework for child-friendly schools, which must reflect a healthy and protective environment for children (15). In 2000, WHO, UNICEF, United Nations Educational, Scientific and Cultural Organization (UNESCO), and World Bank jointly launched Focusing Resources on Effective School Health (FRESH), which is the most recent approach of school health and nutrition program. The framework aims to make schools healthy to improve the health of school children and youths worldwide (16).

1.1.2 School aged children and school health in Nepal

Of the total population of Nepal, around 40% are 16 years or under (17), and this group includes school-aged children. Although the death rate of school-aged children is

comparatively lower than children under five, the disease burden among this group is high in Nepal (18). Their health and nutritional status are not well understood yet. Less attention has been paid regarding the health issues of this group, which includes almost half of the national population (18). It neither falls under the priority of health workers nor under the school management team (19).

The history of health education in Nepalese schools dates back to 1971 when health and physical education was introduced as a separate subject up to grade seven (20). However, the Nepal Government did not prioritize school health for many years (1) and it was only limited to a subject taught in the classroom. Until the last few years, there was no systematic effort to provide health and nutrition services for school children and create a healthy school environment (20). Some donor-initiated school health programs were run, but only sporadically for several years (1, 18).

1.1.3 Development of school health and nutrition strategy in Nepal

In the last decade, the Government of Nepal recognized the need to integrate education and health services to ensure better health and improved learning of school students. Therefore, in 2006, the Ministry of Health (MOH) and the Ministry of Education (MOE) in Nepal jointly endorsed National School Health and Nutrition Strategy (SHN strategy), with the technical support from Japan International Cooperation Agency (JICA) and Save the Children US (19). SHN program implementation guideline and booklet were also developed along with the strategy (19, 20). A joint action plan document was also developed which included integrated school health and nutrition activities. The SHN strategy has become a milestone for the Nepal Government to achieve both health and education goals simultaneously for school children in the country.

After the endorsement of the strategy, MOH and MOE have been cooperating and collaborating with the relevant stakeholders from the national to community level to put the

strategy into practice (19). The main goal of the SHN strategy is to address health and educational needs of school children in Nepal (19, 20). The strategy is comprehensive and has four strategic objectives (19, 20). They are 1) to improve the use of SHN services by school children, 2) to improve the school environment, 3) to improve health and nutrition behaviors and habits and, 4) to improve and strengthen community support systems and policy environment (19).

1.1.4 Definition of SHN program and its implementation in Nepal

SHN program in Nepal is the program jointly implemented by the MOH and the MOE of the Government of Nepal and different stakeholders from national to school level in Nepalese schools (20). The program is based on the National SHN strategy. After the strategy was developed, National level SHN network was also formed which works closely with the government and relevant stakeholders to advocate SHN program activities in the country (21). The network includes MOE, MOH, and different aid agencies. Different aid agencies have been providing technical and financial support to implement the program in different parts of the country (19). Aid agencies consider SHN program as a high priority intervention in developing countries, including Nepal (1).

The SHN program is based on the four strategic objectives of the SHN strategy (19) and is a comprehensive package. The package includes components such as school-based health and nutrition service, healthful school environment, and life skill-based health, hygiene and nutrition education. The program aims to promote physical, mental, emotional and educational status of school children in Nepal. During the program implementation, the four objectives are converted into actions, which include activities and indicators that are identified under each strategic objectives. Ultimately, the actions are reflected as outcomes in terms of changes in students' health-related knowledge, attitudes, skills, behavior, and health outcomes.

According to the SHN strategy and revised joint action plan (19, 21), below are the lists of SHN activities conducted to achieve the four objectives of the strategy:

- 1) Strategic Objective 1: Improve use of SHN services by school children
 - a) Annual basic screening and referral which includes: height and weight measurement, hearing, vision, dental screening
 - b) Bi-annual Supplementation of De-worming Tablets to School Children (Grade1-10) attending in all 75 districts
 - c) Provision of First Aid Kit Box in schools with maintenance and Refilling System
 - d) Iron-folate Supplementation to adolescent school children (Grade 6-10)
 - e) Midday Meal Program (cash, kind and tiffin box support with parental orientation)
- 2) Strategic Objective 2: Improve healthful school environment
 - a) Construct/Maintain/Repair Toilets, Urinals & Safe Drinking Water taps based on the guidelines of Department of Education.
 - b) Construct and repair child friendly furniture, classroom and school building with adequate light and ventilation in classrooms.
 - c) Provision of hand washing with soap
 - d) Orientation training to school teachers
- 3) Strategic Objective 3: Improve health, nutrition behavior and habits
 - a) SHN checklist and attendance register
 - b) Child club mobilization
 - c) IEC/BCC SHN programs
 - d) SHN week celebration
 - e) Life skill based education

- 4) Strategic Objective 4: Improve, strengthen community support system and policy environment
- a) Strengthen the coordination mechanism among National Planning Commission, Ministry of Local Development, MOH, MOE & other line ministries and mainstream SHN in National Development Policy
 - b) Institutionalize SHN Program in MOH and MOE at central and district level
 - c) Strengthening School Management Committee (SMC) and incorporation of SHN in SIP
 - d) Establish SHN legal framework

1.1.5 Challenges in SHN program implementation and its sustainability

SHN program implementation in Nepal has several operational challenges (18, 20). Some major challenges identified were lack of sufficient fund, inadequate physical infrastructures and lack of trained human resources (22-25). The poor coordination and partnership between stakeholders was a significant hindrance in implementing and achieving the SHN program objectives (20). Furthermore, only a few of the stakeholders, including aid agencies, have understood or desired the comprehensive approach of the SHN strategy (18) and its objectives. Hence, some of the objectives of SHN strategy are only being focused while implementing SHN programs (20).

Sustainability of the program is one of the key challenges in implementing public health programs (26). The SHN program implementation in Nepal may not be an exception because a few studies conducted in Nepal showed that the coverage of the program is poor and has not reached every district of the country (20). The program is limited within the government schools and students in private schools are devoid of the benefits of the program (18, 20). In addition, due to limited human and material resources several aid agencies have been supporting Nepal government to conduct most of the program activities. However, after

the support from these agencies terminate, the sustainability of the program activities becomes a challenge.

1.1.6 Evaluation of SHN policy and program implementation

Literature review shows that several studies have been conducted on SHN policy and programs in different countries. The studies focused on the development of evaluation framework for SHN program and evaluated the national school health policies and programs based on the policies.

A study conducted in Taiwan developed Taiwan Health-Promoting School Accreditation System (HPSAS) framework and then evaluated its accreditation effectiveness. The study conducted document reviews and on sites visits and established six key HPSAS standards (27).

A case study in Hong Kong evaluated design, implementation and results of health promoting schools using Hong Kong Health Promoting Schools Award Scheme (HPSAS) (7). This study examined the differences in students' perceptions, knowledge and their health behaviors between those schools with Health Promoting School (HPS) framework, and those without HPS framework. The study revealed that the students in schools with HPS framework showed more positive health behavior than those in non-HPS schools.

A case study on Laos's National School Health Policy (NSHP) identified several influential factors for NSHP implementation in the country (22). The study recommended that extensive planning with long-term vision at national level, human resource management and regular monitoring to understand the real situation of NSHP implementation at school level was necessary for the sustainable and nationwide implementation of NSHP in Laos.

Similarly, another study on evaluation of Thailand's National School Health Policy (NSHP) implementation also revealed the positive and negative factors that influenced its implementation (28). The study showed that involvement of multiple stakeholders, sustainable

human resources development at school level, sufficient understanding and acceptance of school health concepts were some positive factors. While, factors such as lack of institutional sustainability, vague role of stakeholders and diverse health issues of school children negatively influenced NSHP implementation in Thailand.

1.1.7 Research gaps

Sustainability of health program is relatively a new area of study in health care and to my knowledge, no study has yet studied sustainability of SHN program. In-depth study is necessary to understand the factors influencing sustainability of the program activities and its positive effects. Effective SHN programs if discontinued, may not reach to many students and the recourses used in implementation of such programs will be wasted (26). Therefore, evaluation of the SHN program is indispensable to understand the implementation process, and sustainability of the program activities and its effects, which can help to decide the scaling up of the program.

Furthermore, despite mounting evidence which has shown that SHN programs can promote the health of students, school personnel, families and other members of the community (2, 12, 29), the evidence is limited on the factors influencing SHN policy and program implementation process and its impact particularly in resource-limited countries. A very few studies have included the stakeholders from central to school level to evaluate the SHN policy and program implementation and its sustainability.

The study from Hong Kong revealed that the students in schools with HPS framework showed more positive health behavior than those in non-HPS schools. However the study did not focus on the causal relationship that HPS could address communicable diseases (7). Besides, this study only included school students but not other stakeholders actively involved in conducting the Hong Kong Healthy School Award scheme.

The study from Taiwan to develop HPSAS framework and evaluate its accreditation effectiveness only conducted document reviews and on sites visits (27). Similarly, another study from the country included school principals and teachers to understand their perspectives on implementation and sustainability of HPS in Taiwan (30). However, both studies did not include school students.

Besides, the case studies of NSHP in Laos and Thailand though evaluated the NSHP implementation in schools of Laos and Thailand, these studies only included key informant interviews at national to school level and document reviews (22, 28). Both studies did not include the interviews of aid agencies that have been playing significant roles in developing and implementing SHN policies and program in low-and middle-income countries. Besides, these studies have not included students on whom the SHN programs have the major impact.

The above-mentioned studies mostly focused on implementation and effectiveness of SHN policies and program. None of them explored the sustainability of SHN program activities and its effects. In addition, no study has yet evaluated SHN policy/ strategy and programs implementation process in South Asia, including Nepal. In Nepal, only a handful of studies are available focusing on particular health issues of school students (31-33). There is no study yet in Nepal, which has evaluated SHN program based on National SHN strategy and its sustainability. Therefore, this research aims to fill these gaps. This study included all relevant stakeholders from national to school level, including aid agencies and evaluated SHN program implementation process, its impact, challenges and sustainability in Nepalese schools. The study is also a first study in Nepal which determined the association of students' recognition/ utilization of SHN program activities on students' health outcomes among Nepalese students. The above-mentioned reasons make this study novel and unique.

This study had two research questions and to answer these two research questions, I formulated two research objectives. Below are the research questions and objectives of this study.

1.1.8 Research questions and objectives:

Research questions:

Quantitative part (Cross-sectional study):

1. Was the effect of SHN program sustained even one year after the pilot SHN program completion?

Qualitative part (In-depth interview):

2. How do SHN program stakeholders perceive about the SHN program implementation, its impact, challenges and sustainability?

Research objectives:

Quantitative part (Cross-sectional study):

1. To determine the association of students' SHN program activities recognition/ utilization on their health outcomes, one year after the pilot SHN program completion.

Qualitative part (In-depth interview):

2. To explore stakeholders' perceptions of the SHN program implementation, its impact, challenges and sustainability.

1.1.9 Study design: quantitative and qualitative studies

I conducted this study in two parts: quantitative and qualitative parts. The quantitative study addressed the first objective and assessed the association of students' SHN program activities recognition/ utilization on their health outcomes. I conducted this study among the school students from grades six, seven and eight in four districts of Nepal. Out of four districts, two were intervention and two were control districts. However, this study could not capture the

comprehensive picture of SHN program implementation process and its challenges because it only included data from students and hence did not include other stakeholders who were actively involved in implementing the program. Therefore, to address the second objective of this study, I conducted a qualitative study simultaneously to understand in-depth the SHN program implementation process, its impact, challenges and sustainability.

In qualitative part of the study, I explored stakeholders' perceptions regarding the program implementation process, its impact, challenges and sustainability in the country. For this part of the study, I conducted key informant interviews of the stakeholders from central to school levels, including aid agencies that were actively involved in SHN program implementation in Nepal. The key informants were from seven districts representing the four out of five the then developmental regions of the country.

In this study, both quantitative and qualitative data provided comprehensive picture and new insights of SHN program implementation process, its impact, challenges and sustainability in schools of Nepal. Moreover, a part of the qualitative findings enabled me to support the findings from the quantitative study.

1.1.10 Conceptual framework of the study

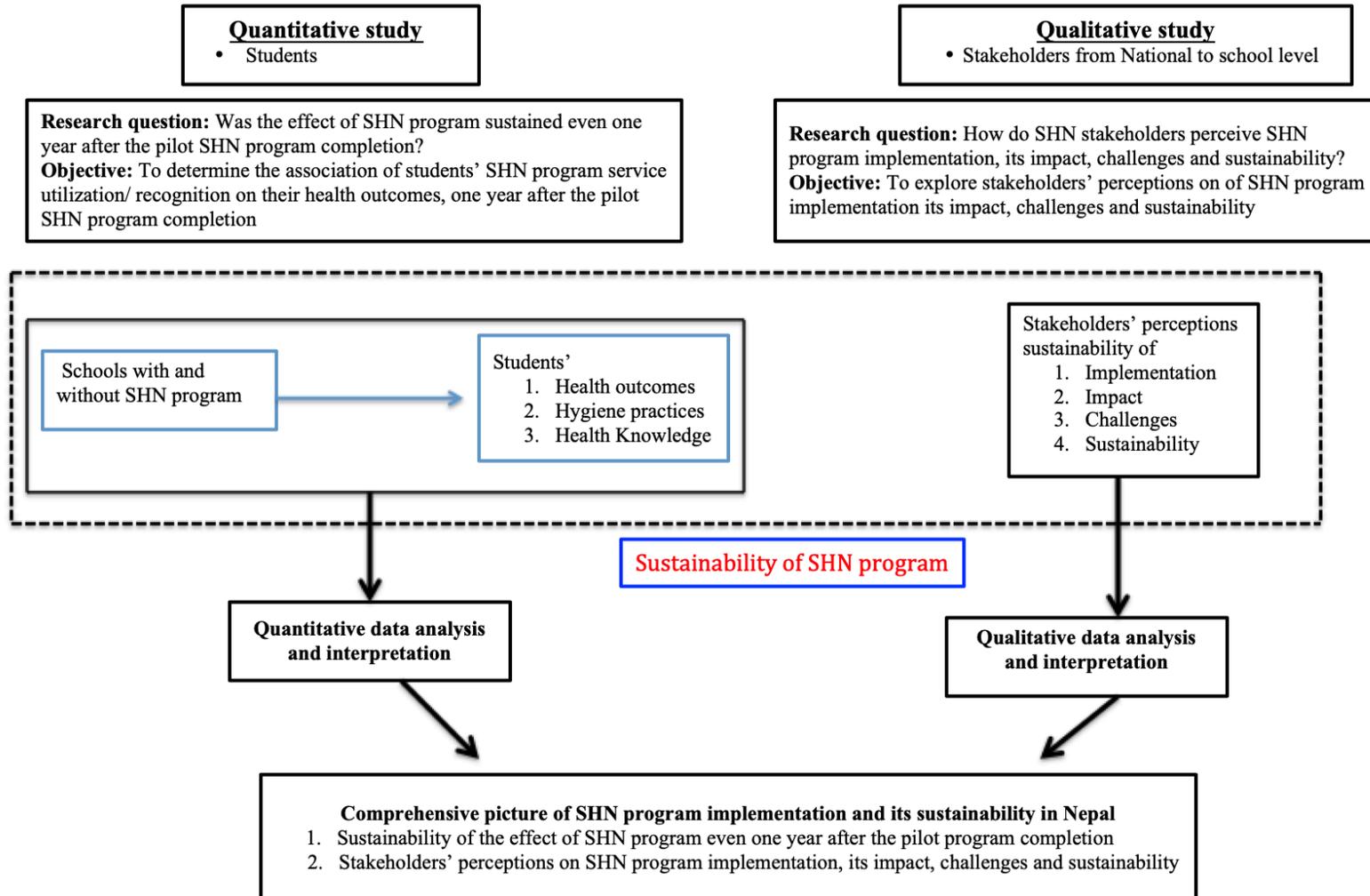


Figure 1: Conceptual framework of the study

1.2 Organization of the thesis

This thesis is divided into four chapters. Chapter one includes the general introduction, which summarizes the research questions, study objectives and the conceptual framework of the study. The second chapter includes the quantitative study and answers first research question and addresses the first study objective. The third chapters answers second research question and addresses second research objective of this study. Finally, chapter four is a concluding chapter, which includes general discussions of both qualitative and quantitative studies, conclusions and recommendations based on the findings from both studies.

Chapter 2: A school health program can uplift the health status of school children in Nepal

2.1 Background:

Schools have been a powerful setting in the community to promote health programs (2). Most of the young people aged 5-17 spend almost 13-15 years of their lives in schools. Besides family, school is the main institution that shapes the overall growth of school children (24). Therefore, schools should have a safe and healthy environment for their physical, psychosocial and intellectual growth (2).

In low-income countries, schools and teachers are more in numbers than health institutions and health professionals (34). Furthermore, many school-aged children in these countries are affected by several treatable and preventable illnesses (24, 35). Students' ill health can be associated with poor cognitive development, learning and academic performances (34, 36). WHO considers the SHN program as one of the cost-effective interventions to improve health and education of school children (37). Therefore, school SHN program becomes particularly important in low-income countries to promote health and education of poor and underprivileged school children, who can benefit both in terms of health and education because of its significant benefits and low cost (34, 35).

Nepal is a country located in South Asia with an estimated population of 28.2 million as of 2016 and the majority of the population resides in rural areas (38). It is one of the poorest countries in South Asia with almost a quarter of the population living below the poverty line (39). Also, around 40% of the total population in Nepal is 16 years or younger (17), which is the group of school-age children. About 5.2 million children of the age group 5-12 years in Nepal attend primary and lower secondary school (39). According to NDHS (Nepal Demographic Health Survey) 2016, the net attendance ratio for primary school children was reported to be 80% and for secondary school was 67% respectively (40).

In Nepal, school children spend around 200 days of a year in their schools (19). Therefore, the school environment plays a significant role in their physical and mental growth.

For effective learning, the school environment should be clean, safe and healthy (12). However, large numbers of schools in Nepal are government schools, which are located in the villages, and the majority of school children attend these schools (19). The schools in villages have poor physical infrastructures and therefore lack proper hygiene and sanitation facilities (19).

School children in Nepal suffer from different preventable diseases of which diarrhea, worm infestations, and oral infections are the most common ones (19, 21). Worm infestations is one of the prevalent infections among school children (41, 42). Heavy worm infestations in children increase the risk of other morbidities such as anemia, malnutrition, stunted growth, diarrhea etc. According to NDHS 2011 (43), diarrhea is also another most common illnesses among children and is the major cause of morbidity and mortality in them. Lack of access to safe water and poor personal hygiene and unhygienic sanitary conditions in Nepalese schools makes school children susceptible to diarrheal and worm infections. Dental caries is another highly prevalent conditions affecting over 50% of school children in Nepal (33, 44). The adverse health conditions in school children due to different infections can impact on their memory, problem-solving skills and can be cause of low school attendance and poor school performance. Therefore, effective implementation of SHN program can help to achieve both health and education goals for school children in Nepal.

In 2006, MOH and MOE of Nepal jointly launched the National School Health and Nutrition Strategy (19). The strategy has four strategic objectives: 1) Improve use of School Health and Nutrition Services by school children, 2) Improve healthy school environment, 3) Improve health and nutrition behaviors and habits, and 4) Improve and strengthen community support system and policy environment. SHN program in Nepal are being conducted in line with the four strategic objectives of the SHN strategy with the aim to improve physical, mental, emotional and educational status of the school children.

After the formulation of SHN strategy in 2006, MOH and MOE jointly conducted a four-

year long pilot SHN program in two districts of Nepal- Sindhupalchok and Syangja from 2008 to 2012. This pilot program was conducted with technical and financial support from JICA. The pilot program aimed to achieve the four objectives of SHN strategy by involving relevant stakeholders from central level to school and community level. The pilot program focused on areas such as education, health, nutrition, sanitation and hygiene to improve students' health knowledge, hygiene practices, nutritional behaviors, and health outcomes. According the endline survey report of this pilot SHN program (41), it included the following major activities:

- 1) Annual physical check-up, which includes: height and weight measurement, hearing, vision, dental screening
- 2) Mass deworming
- 3) Iron supplementation
- 4) Vitamin A supplementation
- 5) Maintenance of first aid kits
- 6) Maintaining students' health record
- 7) SHN checklist and attendance register
- 8) Special health education
- 9) Child club mobilization
- 10) Provision of safe drinking water, hand washing facilities and toilets
- 11) Mid-day meal
- 12) Promotion of tin-box library/IEC corners
- 13) Teachers' training for conducting SHN activities

Sustainability is one of the key challenges of public health programs supported by aid agencies (26). The pilot SHN program might not be an exception because it was conducted with technical and financial support from JICA. Sustainability of the pilot program can be defined as

the continuity of program activities, and continuity in behavior change and health benefits received by the students even after the end of the support provided by JICA (45, 46). Therefore sustainability of the program can be reflected in terms improved health outcomes among students even one year after the completion of the pilot program compared to that of baseline of pilot program (45, 46).

A growing body of literature has shown that SHN program can improve the health status of school children (2, 12, 29). However, no study has yet explored sustainability of SHN program and its effects after the end from external support. Moreover, there are limited studies on the effectiveness of the program particularly in resource-poor countries like Nepal. Therefore, I conducted this study with the following study objective: to determine the association of students' recognition/ utilization of SHN program activities on their health outcomes, one year after the pilot SHN program completion. To my knowledge, this is the first study to measure the sustained effect of the pilot program activities on students' health outcomes and their behaviors one year after the program completion.

2.2 Methods:

2.2.1 Study design and area

I conducted a cross-sectional study in November and December 2013, one year after the pilot program completion. The pilot SHN program was four year long and was conducted from 2008 to 2012. I collected data from two groups of students from four districts. The first group was the program group from the schools in Sindhupalchok and Syangja districts, which had participated in the SHN program conducted by JICA (19, 20). The second group was the comparison group from Dolakha and Tanahu districts. I selected the second group for comparison because the pilot SHN program had covered all the schools in the target districts, and Dolakha and Tanahu are also the neighboring districts with similar human development indexes and adult illiteracy rates. According to the Nepal Human Development Report 2014 (47), the human development indexes

of the two comparison districts were comparable to that of pilot program districts (Sindhupalchok= 0.455 Vs. Dolakha= 0.459 and Syangja= 0.527 Vs. Tanahu= 0.506). The adult illiteracy rates of these districts were also similar (Sindhupalchok= 50.5% Vs. Dolakha= 46.4% and Syangja= 29.6% Vs. Tanahu= 31.7%).

2.2.2 Study participants and sampling

The pilot SHN program was implemented in all the schools in Sindhupalchok and Syangja districts. I purposively selected three schools each from two program districts. The district education office (DEO) officers recommended these schools as average, above average, and below-average schools based on their performance on SHN program activities during the pilot program. According to the SHN guideline, at the end of each academic session during the program period, the schools were given scores on the basis of their performance in the SHN monitoring sheet. The resource persons from district education office were assigned for the particular school and they were responsible to conduct the regular monitoring and evaluation of SHN program activities going on in the schools. During the evaluation process, the schools that scored more than 80% were certified as above average and were awarded each year. The schools which scored below 60% was considered as below average, the ones which scored 60% to 80% were average (48).

The three schools I had selected from each program districts were government and secondary schools. For the convenience, I chose only the schools, which had access to motor roads and were within the distance of 5 kilometers from the main market of the village. Many schools in these villages had poor road access and were difficult to travel. I chose the schools closer to the market. I also followed the similar criteria to select the schools from each district in the comparison group. All six schools in the comparison group were also government and secondary schools, and were within the distance of 5 kilometers from the main market.

I recruited altogether 604 students from six program schools from two program districts and 648 students from six schools from two comparison districts. The students from program group were exposed to several SHN program activities while the students in comparison group were not part of the pilot SHN program and were devoid of many SHN activities. However, students from this group were exposed to basic health education curriculum, basic hygiene and sanitation facilities, and deworming program by the government.

I selected the students from grades six, seven and eight. In the program schools, students from these grades continuously participated in the four yearlong pilot SHN program. I randomly selected one class from each grade. Every class consisted of 30 to 35 students, resulting in approximately 100 students from each school. I included all the students who were present on the day of data collection and agreed to participate in the study. The response rate was 100%. However, based on the national data of the average attendance rate in the four districts (49-51), I assumed that 10 to 25% of the total enrolled students might not have been included in this study.

To calculate the sample size, I used the prevalence of intestinal parasite as 35% which was reported in a study conducted among the school children in Nepal (52). I calculated the minimum sample size using the Open Epi Version 3 with the level of significance set at 5% for a 95% confidence interval, 80% power and effect size of 14% in primary outcome variable (worm infestation). I assumed at least 14 % effect size because the endline survey of pilot SHN program reported around 14% reduction in worm infestation among students after the intervention (41). The minimum sample size was calculated as 172. Having considered the multistage sampling methods to recruit students, I therefore adjusted the minimum simple size by multiplying it with design effect. Design effect is the adjustment made due to sampling method resulting into larger sample size than the expected sample size obtained with simple random sampling. To estimate the design effect in this study, I assumed within-school intra-class correlation coefficient of 0.01 (that ranged from <0.01 to 0.01 for health outcomes, which included diarrhea, loose/ watery

stool, respirator infections, vomiting and skin rash) (53). I considered each school as a cluster and the average number of students in a school was around 100. Then, I calculated the design effect as 1.99, using the formula $D_{\text{eff}} = 1 + (m-1) * p$, where m is the average number of students in each class, and p is an inter-class correlation. Thus, the required number of students was estimated to be 343 in each group, which was obtained by multiplying the minimum sample size with the design effect. To account for poor data quality and potential missing data, I estimated the total sample size in each group as 600.

2.2.3 Instrument development

I developed the questionnaire in English by adopting and modifying questions from the following five survey questionnaires: (1) the Global School-based Health Survey (GSHS) questionnaire (54), (2) the Health Behavior in School-aged Children (HBSC) survey questionnaire (55), (3) ‘wash in schools: monitoring package’ (56), (4) student questionnaire from the SHN program survey, and (5) questions from a previous study conducted in Hong Kong (7). I then translated the questionnaire into Nepali, a research assistant back-translated into English then I verified the original and back-translated versions. After that, I pre-tested the questionnaire among 100 students in one of the schools in Sindhupalchok before the data collection of the main survey. Finally, I discussed its contents among public health researchers, school health experts, schoolteachers, and students. Based on the pre-test results and feedbacks, I modified the questionnaire for easier understanding.

2.2.4 Measures and instruments

2.2.4.1 Health outcome variables

The outcome variables of this study were students’ three health outcomes, which included worm infestation, diarrhea/ dysentery and toothache.

Primary health outcome

a) Worm infestation

Of the three health outcomes, I selected worm infestation as the primary outcome of this study because worm infestation is one of the most prevalent infections among school children in Nepal (41, 43). Also, during the SHN program, one of the SHN services included deworming program. I adopted the item to measure the worm infestation from the endline survey of the pilot SHN program (41). I asked students to respond to the item ‘Did you suffer from worm infestation within past one month?’ The responses were categorized as ‘1= yes’, ‘2= no’ and ‘3= don’t know’, which I later recoded into two categories by grouping ‘yes’ as 0 and ‘no’ and ‘don’t as 1. I assumed that those students who responded ‘don’t know’ to the items had not experienced pain or discomfort and became ill because of worm infections.

Secondary health outcome

a) Diarrhea/ Dysentery

I selected diarrhea/ dysentery as one of the secondary outcome variables of this study because diarrhea is another most prevalent infections among school children in Nepal (41, 43). Also, the SHN program activities focused on WASH facilities, promoted good hygiene and sanitation practices and also included deworming program. I adopted an item from the endline survey of the pilot SHN program to measure diarrhea/ dysentery (41). Students responded to the ‘Did you suffer from diarrhea or dysentery within the past one month?’ The responses were categorized as ‘1= yes’, ‘2= no’ and ‘3= don’t know’, which I later recoded into two categories by grouping ‘yes’ as 0 and ‘no’ and ‘don’t as 1. I assumed that those students who responded ‘don’t know’ to the items had not experienced watery stool passing, pain or discomfort and became ill because of diarrhea/ dysentery.

b) Toothache

Another secondary outcome variable in this study was toothache because it was also another most prevalent infections among school students in Nepal (33) and SHN program activities also focused on hygiene practices. I adopted an item from GSHS survey questionnaire to measure

students' toothache (54). Students responded to the item 'During the past 12 months how often did you have a toothache or feel discomfort because of your teeth?'. The responses were in an ordinal scale ranging from 1(never) to 4 (always). I then recoded them as '0= sometimes to always' and '1= never'.

2.2.4.2 Student' health knowledge

I measured health-related knowledge using nine items. I asked students about the health knowledge and information they received from their schools. Students' responses were categorized as '1= yes', '2= no' and '3= don't know'. I then recoded the responses into two categories by grouping 'no' and 'don't know' as 0 versus 'yes' as 1. Furthermore, I calculated a total score of the nine items ranging from zero to nine. A higher score indicated more health-related knowledge or information received from schools and vice versa.

2.2.4.3 Students' hygiene practices

I used four items to measure the students' hygiene practices, which included hand washing, brushing teeth, and sanitary practices. I adopted the items from GSHS questionnaire (54). For brushing teeth, students responded to the item 'During the past 30 days, how many times did you brush your teeth per day?' The responses ranged from '1= never' to '4= 2 or more times per day'. The responses were recoded into two categories as '0= one or less than one time per day' and '1= two or more times per day' (57). Moreover, students responded to the items on hand hygiene practices such as 'During the past 30 days, how often did you wash your hands before eating?' '...after using the toilet or latrine?' and '...how often did you use soap when washing your hands?' The responses were in an ordinal scale ranging from 1(never) to 4 (always), which I recoded into two categories as '0= never to many times' and '1= always' (57). I then created a composite variable by calculating the total score ranging from zero to four, a higher score indicating better hygiene practices.

2.2.4.4 Students' recognition/ utilization of SHN program activities

a) School health services

I measured the students' recognition/ utilization of school health services available in the schools through eight variables extracted from the strategic objectives of the National SHN strategy (19). They were mass deworming, vitamin A and iron supplementation, vision, hearing and dental screenings, students' health records, and first aid services. I asked the students if they had received the above-mentioned health services in their schools in the last one year. Students responded to the items as '1= yes', '2= no' and '3= don't know'. I assumed that students who responded 'don't know' to the items were not aware of the services and may not have used the services in their schools. I then recoded the responses into two categories by grouping 'no' and 'don't know' as 0 and 'yes' as 1. Furthermore, I calculated the total score of the school health services. The score ranged from zero to eight. A higher score indicated better excess to school health services available in the schools.

b) Hygiene and sanitation facilities

I measured students' recognition/ utilization of hygiene and sanitation facilities in schools by asking the students if their schools had the facilities such as safe drinking water, toilet, and hand washing facilities. I adopted the items from 'wash in schools: monitoring package' by UNICEF (56). Students responded to eight items and their responses were categorized as '1= yes', '2= no' and '3= don't know'. I assumed that the students who responded 'don't know' to the items have not seen and may not have used those facilities in their schools. I then recoded their responses into two categories by grouping 'no' and 'don't know' as 0 and 'yes' as 1. I then calculated the total score ranging from zero to eight, a higher score indicating better access to health and sanitation facilities.

c) Child club

I measured students' recognition/ utilization of child club activities in their schools by asking students if their schools had child clubs for SHN program activities. I extracted this variable based on the strategic objectives of the National SHN strategy and endline survey of SHN program (19, 41). Students responded to the item as '1= yes', '2= no' and '3= don't know'. I then recoded the responses into two categories by grouping 'no' and 'don't know' as 0 and 'yes' as 1.

d) Special health classes

I measured students' recognition/ utilization of special health classes in their schools by asking students if their school had special health classes providing life skill-based education based on SHN activities and extracted this variable based on the strategic objectives of the National SHN strategy and endline survey of SHN program (19, 41). Students responded to the item as '1= yes', '2= no' and '3= don't know'. I then recoded the responses into two categories by grouping 'no' and 'don't know' as 0 and 'yes' as 1.

2.2.4.5 Independent variable

The independent variable of this study was the SHN program. The schools were categorized into two groups. The schools with the SHN program were coded as 1 and without the program were coded as 0.

2.2.4.6 Socio demographic variables

The socio-demographic variables measured in this study included age, gender, grade, ethnicity, religion, living arrangement and parents' education level.

2.2.5 Data collection

I collected the data in November and December 2013 and trained six local research assistants on the data collection and ethical procedures before the data collection. Students filled out the self-administered questionnaire in Nepali-language during their regular class hours, which took 40-50

minutes to complete. I provided instructions to the students before the data collection. The research assistants were present throughout the process to answer students' queries.

2.2.6 Data analysis

Altogether I recruited 1,252 students in this study, of which data sets of five students were incomplete and were not included in the analysis. I then analyzed 1,247 data sets, 603 from the program group and 644 from the comparison group. I conducted bivariate analysis through chi-square test and independent sample t-test to examine the difference in the general characteristics of the students and their recognition/ utilization of SHN program services between the students of SHN program group and the comparison group.

I then conducted multiple logistic regression analyses to examine the differences in the students' recognition/ utilization of school health services, hygiene and sanitation facilities, child clubs and special health classes, by adjusting potential confounders. I also conducted a multivariable linear regression analysis to determine the difference in knowledge score between students from the program group and the comparison group. Furthermore, I conducted logistic regression analyses to examine significant difference in hygiene practices, and three health outcomes between two groups of students. The variables included in the models did not have multicollinearity. I used SPSS version 16.0 for Windows (SPSSInc., Chicago, IL) for all statistical analyses. The level of significance was set at $p < 0.05$ for all the statistical analyses.

2.2.7 Ethical consideration

The ethical application and consent procedure of this study were reviewed and approved by the Research Ethics Committee of the University of Tokyo and the Nepal Health Research Council (NHRC). The district education offices also permitted data collection from the schools in all four districts. I distributed letters to all the schools requesting for their cooperation and participation. The school principals provided written consents for their students' participation. Furthermore, I distributed letters to the parents/ guardians of the targeted students to explain our study in

advance and requested students to obtain their verbal consent, which was not recorded. Students, who received the consent from their parents/ guardians, were explained about the details of this study and then they signed the informed consent forms. They were also ensured for their voluntary participation and they could withdraw from the study at any time. I managed the data with high confidentiality and kept the participants' identity anonymous.

2.3 Results:

2.3.1 Socio-demographic characteristics of the students

Table 1 shows the general characteristics of the students from both groups. Of the 1,247 participants, 603 (48.4%) students were from the program group and 644 (51.6%) were from the comparison group. The mean age of students in the program group was 12.3 years (SD 1.3) and 13.5 years (SD 1.4) in the comparison group and was significantly different between two groups. Though Hindu was the major religion in both groups (68.1% Vs. 85.5%), it was significantly different between two groups. The majority of students from both groups belonged to the Janajati ethnic group (47.0% vs. 46.2%). However, ethnicity was also significantly different between two groups of students. Though living arrangement was also significantly different between two groups, about 70% of the students in both groups were living with both of their parents. About 60% of fathers had completed schooling up to lower secondary level in both groups and above also 60% of the mothers had studied up to lower secondary level in both groups. However, parental education level was also significantly different between two groups of students.

Table 1: Socio demographic characteristics of the students (N=1,247)

Variable	Schools with pilot SHN program (n= 603)		Schools without pilot SHN program (n= 644)		p-value
	Mean	SD	Mean	SD	
Age ‡	12.8	1.3	13.5	1.4	<0.001
	N	%	N	%	
Gender †					
Male	257	42.6	282	43.8	0.677
Female	346	57.4	362	56.2	
Grade †					
Grade 6	161	26.7	175	27.1	0.911
Grade 7	213	35.3	220	34.2	
Grade 8	229	38.0	249	38.7	
Ethnicity †					
Brahmin/Chhetri	240	39.9	193	30.0	<0.001
Janajati	283	47.0	298	46.2	
Dalit	79	13.1	153	23.8	
Religion †					
Hindu	410	68.1	549	85.5	<0.001
Buddhist	181	30.1	65	10.1	
Other	11	1.8	28	4.4	
Living arrangement †					
Both parents	397	65.8	459	71.2	0.043
One parent	34	5.6	41	6.4	
Others	172	28.6	144	22.4	
Father's education †					
Illiterate	44	7.3	74	11.6	0.019
Up to lower secondary	349	58.0	370	58.1	
Secondary and above	209	34.7	193	30.3	
Mother's education †					
Illiterate	92	15.3	167	26.6	<0.001
Up to lower secondary	416	69.3	401	63.9	
Secondary and above	92	15.4	60	9.5	

†, Chi-square test; ‡, T-test

2.3.2 Students' recognition/ utilization of SHN program activities in schools

Table 2 presents the similarities and differences in students' recognition/ utilization of school health services, health and sanitation facilities, child clubs, and special health education classes in program schools and comparison schools. Significantly higher proportion of students in program schools recognized/ utilized different school health services such as: deworming (89.8% vs.

54.6%, $p<0.001$), vitamin A supplementation (37.4% vs. 18.0%, $p<0.001$), iron supplementation (26.5% vs. 13.1%, $p<0.001$), first aid services (91.4% vs. 79.4%, $p<0.001$), vision screening (51.4% vs. 39.2%, $p<0.001$), hearing screening (20.1% vs. 6.9%, $p<0.001$), and maintenance of school health record (61.3% vs. 44.6%, $p<0.001$).

Significantly higher proportion of students in program recognized/ utilized two out of eight hygiene and sanitation facilities: a place to wash hand after toilet use (93.7% vs. 84.2%, $p<0.001$) and soap to wash hand (50.0% vs. 37.7%, $p<0.001$). Moreover, the following facilities were highly recognized/ utilized by the students in both groups: toilet (98.8% vs. 98.1%), separate toilets for boys and girls (98.8% vs. 97.5%), and place to wash hands before eating (87.0% vs. 86.2%). However, significantly higher proportion of students in comparison group recognized/ utilized the following hygiene and sanitation facilities such as drinking water (85.4% vs. 89.1%, $p=0.046$) and water for hand washing (90.5% vs. 93.6%, $p=0.039$).

Significantly higher proportion of students in program group recognized/ utilized, child club activities (79.5% vs. 57.3%, $p<0.001$) than those in comparison group. Though statistically insignificant, more students in the program group recognized/ utilized special health classes in their schools (73.0% vs. 69.1%).

Table 2: Students' recognition/ utilization of the SHN program activities in schools (N=1,247)

Variables	Schools with pilot SHN program		Schools without pilot SHN program		p-value
	n	%	n	%	
School health services					
Deworming †					
Yes	539	89.8	347	54.6	<0.001
No/ Don't know	61	10.2	289	45.4	
Vitamin A †					
Yes	223	37.4	115	18.0	<0.001
No/ Don't know	374	62.6	523	82.0	
Iron tablets †					
Yes	158	26.5	83	13.1	<0.001
No/ Don't know	439	73.5	553	86.9	
First aid services †					
Yes	543	91.4	508	79.4	<0.001
No/ Don't know	51	8.6	132	20.6	
Vision screening †					
Yes	308	51.4	250	39.2	<0.001
No/ Don't know	291	48.6	388	60.8	
Hearing screening †					
Yes	120	20.1	44	6.9	<0.001
No/ Don't know	477	79.9	594	93.1	
Dental screening †					
Yes	94	15.7	110	17.2	0.495
No/ Don't know	503	84.3	530	82.8	
Students' health records †					
Yes	366	61.3	287	44.6	<0.001
No/ Don't know	231	38.7	356	55.4	
Hygiene and sanitation facilities					
Enough water for drinking †					
Yes	512	85.4	573	89.1	0.046
No/ Don't know	88	14.6	56	10.9	
Presence of a toilet †					
Yes	594	98.8	630	98.1	0.312
No/ Don't know	7	1.2	12	1.9	
Separate toilets for boys and girls †					
Yes	593	98.8	623	97.5	0.081
No/ Don't know	7	1.2	16	2.5	
Water available for toilets †					
Yes	534	88.9	586	91.1	0.179
No/ Don't know	67	11.1	57	8.9	
Place to wash hands after toilet use †					
Yes	561	93.7	542	84.2	<0.001
No/ Don't know	38	6.3	102	15.8	
Place to wash hands before eating †					
Yes	524	87.0	550	86.2	0.727
No/ Don't know	78	13.0	88	13.8	
Enough water to wash hands †					
Yes	541	90.5	603	93.6	0.039
No/ Don't know	57	9.5	41	6.4	
Soap to wash hands †					
Yes	300	50.0	241	37.7	<0.001
No/ Don't know	300	50.0	399	62.3	

Child club for SHN activities †					
Yes	476	79.5	367	57.3	<0.001
No/ Don't know	123	20.5	274	42.7	
Special health classes †					
Yes	439	73.0	445	69.1	0.125
No/ Don't know	162	27.0	199	30.9	

†, Chi-square test

2.3.3 Students' primary and secondary health outcomes

Table 3 shows that the prevalence worm infestation (14.4% vs. 22.1%, $p=0.001$) was significantly lower among the students in the program group. Similarly, the prevalence of diarrhea/dysentery (18.9% vs. 23.7%, $p=0.038$) was also significantly lower in the same group of students.

Table 3: Students' primary and secondary health outcomes (N=1,247)

Variable	Schools with pilot SHN program		Schools without pilot SHN program		p-value
	N	%	N	%	
Primary health outcome					
Did you suffer from worm infestation within past one month? †					
Yes	86	14.4	140	22.1	0.001
No/ Don't know	501	85.6	493	77.9	
Secondary health outcomes					
Did you suffer from diarrhea or dysentery within past one month? †					
Yes	113	18.9	151	23.7	0.038
No/ Don't know	485	81.1	485	76.3	
How often did you have a toothache because of your teeth? †					
Sometimes to always	308	51.4	335	52.3	0.745
Never	291	48.6	305	47.7	

†, Chi-square test

2.3.4 Students' health knowledge and hygiene practices

Table 4 shows that the mean knowledge score was significantly higher among the students of the comparison group than those of the program group (7.4, SD 2.1 vs. 7.8, SD 1.7; $p < 0.001$). While, the students from program group reported a slightly higher proportion of hygiene practices such as hand washing before eating (54.9% vs. 50.8%), hand washing after toilet use (77.4% vs. 76.4%), using soap while hand washing (49.9% vs. 47.5%), and brushing teeth twice or more times per day (59.0% vs. 54.3%). However, the results were not statistically significant.

Table 4: Students' health knowledge and hygiene practices (N=1,247)

Variable	Schools with pilot SHN program			Schools without pilot SHN program			p-value
	N	Mean	SD	N	Mean	SD	
Health knowledge ‡	581	7.40	2.1	612	7.80	1.7	<0.001
Hygiene practices							
During the past 30 days, how often did you wash your hands before eating? †							
Never to many times		272	45.1	317	49.2		0.146
Always		331	54.9	327	50.8		
During the past 30 days, how often did you wash your hands after using the toilet or latrines? †							
Never to many times		136	22.6	152	23.6		0.661
Always		467	77.4	492	76.4		
During the past 30 days, how often did you use soap when washing your hands? †							
Never to many times		302	50.1	338	52.8		0.396
Always		301	49.9	306	47.5		
How often do you brush your teeth? †							
≤ One time per day		247	41.0	293	45.7		0.096
≥ Two times per day		355	59.0	348	54.3		

†, Chi-square test; ‡, T-test

2.3.5 Comparison of students' recognition/ utilization of the SHN program activities

Table 5 depicts the results of multiple logistic regression models of students' recognition/ utilization of different SHN program activities such as school health services, health and sanitation facilities, child clubs and special health classes. After adjusting for covariates and

confounders, the students from project schools recognized/ utilized increased odds of school health services such as deworming (AOR=7.35, 95% CI: 5.28 to 10.24), vitamin A supplementation (AOR=2.70, 95% CI: 2.04 to 3.59), iron tablet supplementation (AOR=2.20, 95% CI: 1.60 to 3.03), first aid services (AOR=3.04, 95% CI: 2.09 to 4.43), vision screening (AOR=1.71, 95% CI: 1.35 to 2.20), hearing screening (AOR=3.61, 95% CI: 2.39 to 5.43) and the maintenance of students' school health records (AOR=2.17, 95% CI: 1.69 to 2.80). Similarly, students in the SHN program schools also recognized/ utilized increased odds of the hand washing facilities such as a place to wash hands after toilet use (AOR=2.51, 95% CI: 1.65 to 3.80), and soap to wash hands (AOR=1.60, 95% CI: 1.25 to 2.05). They also recognized/ utilized increased odds of child club for the SHN activities (AOR=2.93, 95% CI: 2.23 to 3.85).

Table 5: Comparison of students' recognition/ utilization of the SHN program activities

Variable	AOR	95% CI for AOR
School health services in school		
Deworming tablets †	7.35***	(5.28–10.24)
Vitamin A †	2.70***	(2.04–3.59)
Iron tablets †	2.20***	(1.60–3.03)
First aid services †	3.04***	(2.09–4.43)
Vision screening †	1.71***	(1.35–2.20)
Hearing screening †	3.61***	(2.39–5.43)
Dental screening †	0.92	(0.66–1.28)
Students' health records †	2.17***	(1.69–2.80)
Hygiene and sanitation facilities		
Enough water for drinking †	0.83	(0.57–1.19)
Presence of toilets †	1.64	(0.59–4.58)
Separate toilets for boys and girls †	2.43	(0.93–6.34)
Water for toilets †	0.76	(0.51–1.14)
Place to wash hands after toilet use †	2.51***	(1.65–3.80)
Place for wash hands before eating †	1.22	(0.85–1.74)
Enough water for washing hands †	0.68	(0.43–1.07)
Soap to wash hands †	1.60***	(1.25–2.05)
Child club for SHN activities †	2.93***	(2.23–3.85)
Special health classes †	1.16	(0.89–1.51)

*, p<0.05; **, p<0.01; ***,p<0.001

†, Adjusted for age, gender, ethnicity, religion, living arrangement, father's education, and mother's education

2.3.6 Comparison of students' primary and secondary health outcomes

In table 6, students from the program group reported decreased odds of worm infestation (AOR=0.50, 95% CI: 0.34 to 0.75) and diarrheal/ dysentery infection (AOR=0.67, 95% CI: 0.47 to 0.97), after controlling for covariates and confounders. Though the odds of toothache was also lower, the result was statistically insignificant.

Table 6: Comparison of students' primary and secondary health outcomes

Variable	AOR	95% CI
Primary Health outcome		
Worm infestation within past one month ††	0.50**	(0.34–0.75)
Secondary Health outcomes		
Diarrhea or dysentery within past one month ††	0.67*	(0.47–0.97)
Toothache ††	0.84	(0.63–1.12)

*, p<0.05; **, p<0.01; ***,p<0.001

††, Adjusted for age, gender, ethnicity, religion, living arrangement, father's education, and mother's education, school health services score, health and sanitation facilities score, child club, special health classes, health knowledge score and hygiene practices score

2.3.7 Comparison of students' health knowledge score and hygiene practices

In table 7, the students from the SHN program group showed increased odds of hand washing practice before eating (AOR=1.32, 95% CI: 1.01 to 1.73), after controlling for covariates and confounders. However, their health knowledge score was significantly lower compared to students in the comparison group (β =-0.55, 95% CI: -0.90 to -0.19).

Table 7: Comparison of students' health knowledge score and hygiene practices

Variable	Beta (adjusted)	95% CI
Health knowledge †	-0.55**	(-0.90 – -0.19)
	AOR	95% CI
Hygiene practices		
Wash your hands before eating ‡	1.32*	(1.01–1.73)
Wash your hands after using the toilet ‡	1.06	(0.77–1.47)
Use soap when washing your hands ‡	1.21	(0.92–1.58)
Brush your teeth ‡	1.16	(0.89–1.51)

*, p<0.05; **, p<0.01; ***,p<0.001

†, Adjusted for age, gender, ethnicity, religion, living arrangement, father's education, mother's education, child club for SHN activities and special health classes

‡, Adjusted for age, gender, ethnicity, religion, living arrangement, father's education, mother's education, health and sanitation facilities score, child club, special health classes and health knowledge score

2.4 Discussion:

This is the first study to examine the sustainability of the effect of SHN program activities after one year of pilot SHN program completion. This study determined the association of the students' recognition/ utilization of pilot SHN program activities on their health outcomes, their hygiene practices and health knowledge after the completion of the pilot program. Moreover, this study is the first one in Nepal to reveal that students in SHN program may likely have better health outcomes and hygiene practices.

In this study, logistic regression analyses showed that a significantly higher number of students in the program group recognized/ utilized various school health services than those in the comparison group. Those school health services included deworming, Vitamin A, Iron tablets, first aid services, vision screening, hearing screening and maintenance of students' health records. Similarly, they also recognized/ utilized significantly more child club for SHN activities compared to the students in the comparison schools. One of the objectives of SHN program was to improve use of SHN services by the students (41). The above findings may suggest that the students in program schools had better access to various school health services and child club activities on SHN program even one year after the support from JICA ended. Also, it may imply that the SHN services were sustained in program schools to certain extent.

Furthermore, the logistic regression analyses showed that significantly higher number of students in program schools recognized/ utilized hygiene and sanitation facilities such as hand washing soap and place to wash hands after toilet use. The findings may suggest that students in program school had better access to hand washing soap and place to wash hands after toilet use. These findings may also imply that the program schools could sustain the above two hygiene and sanitation facilities to certain extent. One of the activities of SHN program was provision of safe drinking water, hand washing facilities and toilets (41). However compared to students in comparison schools, significantly lower proportion of students in program group recognized/

utilized hygiene and sanitation facilities such as availability of enough water for drinking and washing hands. These findings may indicate that availability of water for drinking and hand washing was comparatively less in the program schools. Though provision of safe drinking water and hand washing were included within the pilot SHN program activities, the above findings may suggest that maintenance of these facilities were not sustained after one year of the pilot program completion. Sustainability was one of the challenges of health programs, which is common in most of the school health programs as well (58). On the other hand, this study also showed around 80% to 90% of students from both groups recognized/ utilized seven out of eight hygiene and sanitation facilities measured in this study. These findings reveal that both groups of students had access to basic hygiene and sanitation facilities in their schools. Lack of clean drinking water, toilets and hand washing facilities puts millions of school children at risk of several infectious diseases (59).

Furthermore, after adjusting confounders and covariates, logistic regression analyses revealed that students in pilot program group had significantly better hand washing practice before eating. Three other hygiene practices were also relatively better among these students, though statistically insignificant. Significantly higher proportions of students in the program schools had recognized/ utilized hygiene and sanitation facilities such as hand washing soap and hand washing place, which might suggest better access to hand washing facilities. This may imply that better recognition/ utilization of hygiene and sanitation facilities might have supported students to adopt good hygiene practices in the program group. These results are comparable to those of previous studies, which reported a similar association between personal hygiene practices and health education interventions among the students (60, 61).

Logistic regression analyses further revealed that the prevalence of worm infestation and diarrheal infection were significantly lower in the program group even one year after the pilot

program ended. Though toothache was also lower among the students in program group, the result was statistically insignificant. These findings are in line with the endline survey of the pilot SHN program which also reported a decreased prevalence of worm infestation and diarrheal infection (41). Deworming might have played a major role in lowering worm infections and diarrhea (62, 63) because significantly higher number of students in program schools recognized/ utilized deworming. Furthermore, this study also showed that students in program group had significantly better hygiene practice such as hand washing before eating. Three other hygiene practices were also relatively better, which also included hand washing with soap. Slightly better hygiene practices might have also contributed in reducing worm and diarrheal infections (61, 62). The overall findings from this study may imply that students' positive health outcomes in the program group may be attributed to students' better recognition/ utilization of school health services such as deworming, hand washing facilities such as soap and students' relatively better hygiene practices.

One of the key concepts of sustainability is continuation or maintenance of program activities even in absence of the team which started and supported the program (45). In this study, compared to students in comparison group, higher number of students in program group continued recognizing/ utilizing various school health services, child club activities, hand washing facilities such as hand soaps and place to wash hands after toilet use. I conducted this study one year after the pilot program completion. Therefore, the above findings may suggest that several SHN program activities measured in this study were sustained to certain extent even one year after the pilot program was completed and the support from JICA terminated.

Another aspect of sustainability in health program is defined as continuity of benefits due to the program even after the termination of support provided during the program (45). In this study, continuity of benefits of the SHN program was reflected in terms of students' better health outcomes and hygiene practices in the program schools. Continuity of SHN program activities to

certain extent in program schools might have contributed to better health outcomes and hygiene practices among students in program schools. Therefore, the findings from this study may suggest that SHN program activities and its effects were sustained to certain extent.

Furthermore, according to the endline survey report from pilot SHN program, 20.6 % and 5.2% of students in program schools reported worm infestation in the baseline and endline survey simultaneously. In this study, 14.4% of students in the program group and 22.1 % of students in comparison group reported worm infestation. Compared to baseline data of the pilot program, lower proportion of students in program group in this study had worm infestation but higher than that of endline data. Similarly, 21.6% and 8.3% of students reported diarrheal infection in the baseline and endline survey of the pilot program simultaneously. In this study, 18.9 % of students in the program group and 23.7% of students in comparison group reported diarrheal/dysentery infection. Comparing the findings of this study with that of the findings from the pilot program might also indicate that the effects of pilot program on students' health outcomes had been sustained to certain level, though not up to the level of endline data.

However, this study revealed that health knowledge score was significantly higher among the students in the comparison group though it was expected to be higher among the students in the program group. This may be because the students in the comparison group were also exposed to basic health education and hygiene issues as part of the compulsory health education curriculum of Nepal (41). Besides, they might have been exposed to some other sources of information that might have helped in improving their knowledge, which was not adjusted in this study.

**Chapter 3: School health and nutrition program implementation,
impact, and challenges in schools of Nepal: stakeholders'
perceptions**

3.1 Background

Schools have been a powerful setting to promote health programs (2, 5). The SHN program is a cost-effective intervention for resource-poor countries (3, 4). Many school-aged children in these countries are affected by treatable and preventable illnesses (24, 35). School children's ill health can be associated with poor cognitive development, learning, and academic performance (36, 64). The SHN program aims to provide timely support and preventive measures to improve the health of school children (34, 35).

Health-promotion activities have been successfully implemented through the SHN program in developed countries (2, 12, 36). However, in developing countries, several operational barriers exist to implement such programs. Major challenges identified include insufficient funds, inadequate physical infrastructures, and lack of trained human resources (22-25). Furthermore, poor coordination and partnerships between stakeholders are also significant hindrances (20).

In Nepal, the MOH and MOE jointly endorsed the National SHN Strategy in 2006 (19). After the pilot SHN program in Sindhupalchok and Syangja districts with the support from JICA, the Government of Nepal has scaled up the SHN program in several parts of the country with technical and financial support from several other aid agencies. The program is based on the four strategic objectives of the SHN strategy and aims to improve the physical, mental, emotional, and educational status of school children in Nepal (19, 20). However, the coverage of the program activities has not reached many districts in the country (18, 20), and most of the support has been limited to the students of government schools (18, 20). Besides, many stakeholders are conducting only selective activities based on their program objectives and limited resources (20).

To understand the effect of SHN program and its sustainability, generating evidence is essential. With this aim, I evaluated the 4-year long pilot SHN program jointly conducted by JICA and Government of Nepal in Sindhupalchok and Syangja districts of Nepal (65) as a first part of this study, which is a quantitative study. The quantitative study was conducted among the

students. However, it could not capture the comprehensive picture of the SHN program implementation process, its challenges and sustainability in Nepal. Also, the study only included students and did not include other stakeholders who were actively involved in SHN program implementation in Nepal. Therefore, I also conducted a qualitative study simultaneously that evaluated the SHN program implementation process, its impact, challenges and sustainability in the country as a second part of this study. The qualitative part of the study included the stakeholders from central to school level, including aid agencies.

Stakeholders can play significant roles in the program implementation, its success and sustainability (66). Their perceptions are equally important to provide information on the factors influencing the implementation process, help to identify the gaps in such process and making it sustainable (28, 67). However, the evidence is limited on the SHN polity and program implementation in developing countries (22, 28, 68), and no study has yet explored stakeholders' perceptions on the SHN program implementation process and its sustainability in low-income countries, including Nepal. Therefore, I conducted a qualitative study to explore stakeholders' perceptions of the SHN program implementation, its impact, challenges and sustainability.

3.2 Methods

3.2.1 Study design and participants

In this qualitative study, I conducted 32 in-depth interviews with key informants from September to December 2013. I used a stratified purposive sampling technique to choose the study areas (69, 70) and included seven out of 75 districts. The seven districts were Siraha, Sindhupalchok, Syangja, Kailali, Kathmandu, Lalitpur and Bhaktapur. Kathmandu, Lalitpur, and Bhaktapur districts are in the Kathmandu valley, where MOH, MOE and different aid agencies were located. Other four districts were selected because the Government of Nepal with the support from several aid agencies were implementing SHN program in those districts (18, 19). Furthermore, the seven

districts represented three physiographic and four out of five previous developmental regions of the country.

3.2.2 Study participants

Table 9 shows the number of key informant interviews conducted from different tiers of stakeholders. I included key informants who were actively involved in the SHN program development and implementation. I recruited these key informants through the personal network of a key person who was also actively involved in the SHN program development and implementation. Using his extensive network of connections and a snowballing procedure, I identified key informants from different organizations who had in-depth knowledge and were actively involved in the program. I then conducted office visits and had telephone conversations, and formal and informal talks to track key informants.

The key informants represented four different levels: 1) central level and 2) aid agency level in Kathmandu valley, and 3) district level, and 4) school level in Siraha, Sindhupalchok, Syangja and Kailali districts. At the central level, I included two key informants from the Department of Education, MOE, and three from the Child Health Division, MOH. The central level key informants were involved in the SHN program development, networking, resource mobilization, and monitoring. At the aid agency level, I recruited one key informant from each of seven different International non-governmental organizations (INGOs), and UN and bilateral organizations. The key informants from the aid agency level were involved in supporting the MOH and MOE to implement the program as well as in monitoring and supervising the programs implemented at the school level. At the district level, four key informants from four District Health Office (DHO) and four District Education Office (DEO) were recruited from Siraha, Sindhupalchok, Syangja and Kailali districts. The district level key informants were involved in planning, coordination, resource mobilization, and monitoring of the SHN program at the school level. At the school level also, I recruited four school principals, four teachers, two local non-

governmental organizations (NGO) members, one resource person, and one school management committee member from Siraha, Sindhupalchok, Syangja and Kailali districts. The school level key informants implemented and self-monitored the SHN program at the school level.

Table 8: Districts, key informants, and number of interviews

SN	Key informants	Districts	No. of interviews
1.	Central level (Focal person for SHN program)	Kathmandu,	
	Ministry of Health	Lalitpur and	3
	Ministry of Education	Bhaktapur	2
2.	Aid agency level (Focal person for SHN program)	Kathmandu and Lalitpur	7
3.	District level (Focal person for SHN program)		
	District education office	Sindhupalchok,	4
	District health office	Syangja, Siraha and Kailali	4
4.	School level	Sindhupalchok,	
	Focal teacher/ school principal	Syangja, Siraha and Kailali	8
	Local NGO/ Resource person/ SMC member		4

3.2.3 Data collection and interview guide

I along with a research assistant conducted all the interviews at the key informants' workplace, some in English and some in Nepali language. Each interview lasted for an average of 1 hour and was tape-recorded and transcribed. Notes were also taken while interviewing. At the end of each interview, the interview notes were reviewed with each key informant to validate what he or she intended to convey. After the data saturation was reached, I stopped the data collection procedure (71). I followed the consolidated criteria for reporting qualitative research (COREQ) guidelines to conduct the interviews, and analyze and report the data (72).

I used a modified interview guide based on the Policy Implementation Assessment Tool for program implementers and other stakeholders, developed by the United States Agency for International Development (USAID) (73). The interview guide included open-ended questions and has been used in health policy and program analysis in several low- and middle-income

countries (74). The guide was translated into Nepali and back translated into English by different individuals to ensure the quality of the translated version.

3.2.4 Data analysis

I conducted thematic analysis, an inductive approach, using the conceptual framework developed by USAID (75) to analyze the data from the in-depth interviews. The framework has been designed to show the links between health-related policy development, program implementation, and health outcomes. I employed this framework to identify themes, codes, and sub-codes from the data and analyzed them to understand the data patterns (76). I then analyzed the data following the five-phase cycle proposed by Yin (70), which includes 1) compiling, 2) disassembling, 3) reassembling, 4) interpreting, and 5) concluding.

In the compiling phase, three research assistants transcribed the interviews. I then assigned unique code numbers to all the transcripts from the 32 key informants as P1 to P32 (P refers to participant), verified the transcripts with the tape-recorded conversations and written notes.

In the disassembling phase, I examined the patterns of interview data and determined themes, and codes after thoroughly reading the transcripts and listening to the interviews repeatedly. Then, I discussed themes, and codes with the research team, which included 5 members including me, to finalize them. I imported the translated texts into Atlas.ti software, version 5, for data sorting and coding. I then distributed the 32 transcripts equally between two groups of research team members. In each group, two members separately sorted and coded 16 transcripts into previously formulated themes, codes, and sub-codes, and then tallied their results to reach consensus. I also sorted and coded all 32 transcripts separately. Subsequently, each group tallied their results with my results to deduce the final codes and sub-codes.

In the reassembling phase, I reassembled all the data under the same themes, codes, and sub-codes into different groups. In the interpreting phase, the research team members and I wrote

summaries to interpret the data and discussed important quotations. Therefore, three team members, including me, summarized each transcript, selected quotations and translated them into English. Finally, in the concluding phase, after reading the summaries and finalizing the quotations, I draw conclusions from the data and discussed them with all the team members.

3.2.5 Ethical considerations

The Research Ethics Committee of the University of Tokyo and the NHRC approved this study. I also obtained written informed consent from all the key informants before the interview. I informed them that their participation was voluntary and they could withdraw from the study at any time. I also assured them of confidentiality and anonymity.

3.3 Results

I categorized the interview data into three broad themes: 1) SHN program implementation, 2) impact of the SHN program, and 3) challenges during program implementation 4) sustainability and suggestions from the stakeholders. Table 10 shows the major themes, codes and sub-codes deduced from the thematic analysis, showing the linkage between program implementation, impact, and challenges during implementation (75).

Table 9: Themes, codes and sub-codes used for data analysis

Themes	Codes	Sub-codes
1. SHN program implementation	a. Stakeholders involved in SHN program implementation b. Major SHN activities	i. Improve use of SHN services ii. Improve school environment iii. Improve health and nutritional knowledge and behaviors iv. Improve in community support system and policy environment
2. Impact of the SHN program	a. Impact on student b. Impact on school environment and community	
3. Challenges in program implementation	a. Lack of coordination between stakeholders b. Limited financial, human and material resources c. Limited training opportunities	
4. Sustainability	a. Sustainability of the program b. Suggestions for sustainability	

3.3.1 SHN program implementation:

a) Stakeholders involved in SHN program implementation

Majority of the participants from central, aid agencies and district level mentioned that a structural network is present from top to down, which included Department of Health Services, Department of Education and different aid agencies at the central level, which were involved in program implementation. At the district and school level, depending upon the local context and area, the key players involved were District Health Office, District Education Office, schools, Village Development Committee, District Development Committee, local NGOs, health posts, Female Community Health Volunteers (FCHVs), youth clubs and parents. A few participants from the central level stated about the SHN network, which was also formed with stakeholders

from different tiers and has been actively involved in implementing SHN programs as a campaign.

“At central level, the ministry of education, ministry of health, national planning commission and different aid agencies are involved, while at grass root level district health office and education office, schools, school management committee, child clubs, parents, students unions, health posts etc. are the main stakeholders actively involved.” (P3, aid agency level: WASH specialist)

“Now, the SHN network is formed and all the stakeholders involved in it have planned and divided their responsibilities. None of the organizations go directly for the implementation of SHN. We all go through SHN network, which has been a good mechanism where we can coordinate.” (P1, aid agency level: SHN program coordinator)

b) Major SHN activities

According to the key informants’ responses from all levels, the major SHN activities could be mainly categorized into four sections, which were based on the four objectives of the SHN strategy (19). The activities aimed at achieving these objectives are listed below.

i) Improve use of SHN services by school students

Majority of key informants responded that they conducted activities such as general and oral health check-ups, first aid services, deworming, iron supplementation, child club activities, maintaining the SHN register, and providing mid-day meals. These activities aimed to improve students’ use of SHN services.

“We particularly focused on health examination, oral health check-ups and camps, tooth brushing and hand washing every day, providing mid-day meals, first aid training, providing first aid box to schools, providing training to school teachers and child clubs in the schools.” (P1, aid agency level: SHN program coordinator)

ii) Improve school environment

Majority of key informants from all levels mentioned that they conducted activities such as school cleaning programs, access to safe drinking water, improving toilet and hand washing facilities, waste disposal pits in school, construction of classrooms, toilets, etc. They mentioned that the above activities helped to improve the school environment.

“Students used to defecate openly in the past, but now they have started using toilets. They collect garbage in the garbage box and after it is filled, they burn it.” (P28, school level: Health and physical education teacher)

iii) Improve health and nutritional knowledge and behaviors of students

According to the key informants from an aid agency, district and school level, they conducted activities such as health education classes, child clubs, and extra-curricular activities to improve students’ health-related knowledge and behaviors. Besides, schoolteachers and child club members were trained to conduct health education sessions on SHN. Awareness programs for parents and community were also conducted.

“After the SHN program started, there have been many improvements. For example, this program has improved students’ knowledge of health and hygiene practices and keeping the school environment clean, etc. We have seen many positive changes after this program.” (P21, school level: Resource person for SHN program)

iv) Improve community support system and policy environment

Some key informants stated that at the central level the members of the SHN network and government actively participated in regular meetings to share and discuss the SHN program strategies, activities, and achievements. Some key informants also mentioned that they received support from communities to conduct SHN activities effectively.

“At the central level, we are the active members of the SHN network. So we are actively participating in the program.” (P3, aid agency level: WASH specialist)

“Water facility was not available in the schools in Pyuthan district. We had a meeting with parents and teachers and told the parents that we could just give them pipelines. Then, they did all the labor work to set up the pipelines. This is one good example of cooperation between the school and community.” (P4, aid agency level: SHNP senior coordinator)

3.3.2 Impact of the SHN program

Based on the key informants’ responses, we categorized the impact of the SHN program into two main parts a) impact on students, and b) impact on school environment and community.

a) Impact on students

All the key informants in this study mentioned that the SHN program was successful in improving students’ general knowledge of health and nutrition. Furthermore, the program also brought positive changes in students’ nutritional behaviors, hygiene practices, and life skills. Some participants also appreciated providing tiffin box to students, after which many parents started sending tiffin from home in those tiffin boxes.

“Students’ awareness on hygiene and sanitary practices has improved. When I was in Dadheldhura, I visited one of the schools there. When I was looking for a toilet, one of the students from grade 3 showed me the toilet and hand washing soap.” (P15, district level: SHN program officer, District Education Office)

“The tiffin box program would be one of the success stories and good practices. Parents started sending tiffin to their kids in these tiffin boxes. So this is about the behavior change among students as well as their parents.” (P5, aid agency level: Country program coordinator, School Feeding Program)

Many key informants further stated that the program improved students’ health status by reducing problems such as diarrhea, parasitic infections, anemia, blindness, and hearing loss.

“When we conducted the program, we had the baseline and end-line data, which showed a huge reduction in anemia.” (P7, aid agency level: SHNP former chief advisor)

“In the past, there used to be diarrhea epidemics but now there are no such incidents.” (P18, district level: District Public Health Officer, District Health Office)

“Physical screening has helped us to identify vision and hearing impairments. We have prevented kids from becoming blind after vision screening and referring them for further treatments. We have also prevented some kids from suffering permanent hearing loss.” (P4, aid agency level: SHNP senior coordinator)

Many key informants also mentioned that the program improved the attendance, enrolment, and retention rates in schools. They further suggested that improved health has a positive impact on students’ academic performance.

“In the past, students could not understand what they were taught. It’s because their stomach used to be empty. So their focus was more on their empty stomach than on their study. But now all the students bring tiffin. Even if they forget to bring tiffin, their parents bring it to school. So students do not run away from their schools. Their health condition is also getting better.” (P29, school level: SHN program coordinator, local NGO)

“We have qualitative data and reports, which showed students now want to come to school and don’t go back in a break. We have mid-day meal promotion so students come back. For adolescents, we have menstrual hygiene management class, which brings them to school.” (P4, aid agency level: SHN program senior coordinator)

b) Impact on school environment and community

Majority of key informants mentioned that the SHN program brought positive changes in the school environment and community. The cooperation between schools and the community also improved. In some areas, communities were mobilized in SHN activities, leading to community awareness.

“Children are changing agents. They are promoting health and hygiene not only in their schools but also in their homes and communities.” (P3, aid agency level: WASH specialist)

"In the past, proper coordination and communication did not exist between schools and communities, so the communities used to be dirty with open defecation. Even tooth brushing was neglected. After the child club mobilization, the child club members conducted rallies in the villages to generate awareness among the community people. After receiving the messages from the school children, the communities have been empowered. The open defecation decreased and more toilets were built. Later, an open-defecation-free zone was declared in school catchment areas. Parents have also started brushing their teeth!" (P1, aid agency level: SHN program coordinator)

3.3.3 Challenges during program implementation

a) Lack of coordination between stakeholders

Majority of key informants responded that MOH, MOE, and their institutions from central to local levels were responsible to implement the programs and a certain level of coordination existed between them. However, some of the key informants at central and aid agency level mentioned that MOH was more active compared to the MOE. Furthermore, the overall coordination between these two sectors was limited, which therefore led to a lack of planning for the sustainability and scaling up of the program.

"There are some difficulties with coordination among stakeholders. Horizontal coordination is more difficult than vertical coordination." (P7, aid agency level: SHNP former chief advisor)

"Most of the organization and ongoing activities come from the health sector. Lower numbers of NGOs or INGOs working in the education sector are involved in SHN program implementation." (P4, aid agency level: SHNP senior coordinator)

"Though a certain level of coordination exists between the stakeholders, in my opinion, the coordination should also act on pulling up the resources for implementing the program. But, I don't see that level of coordination even at the central level, which could generate resources. So I

think it is a bit lacking in this part, which can be a challenge for the sustainability of the program” (P5, aid agency level: SHNP head)

b) Limited financial, human, and material resources

Almost all key informants in this study responded that the allocated funds for the SHN program were not sufficient to implement all the program components and expand it nationwide. Besides, insufficient human resources and physical infrastructures were other major hurdles. Many key informants from the aid agency level agreed that they have limited resources and could conduct only selected programs in some target districts. However, some key informants at the school level mentioned that they tried to obtain funds from local sources.

“We conducted the SHN pilot program from Japan International Cooperation Agency's (JICA) support. But we are facing difficulties to expand the program because of financial problems.” (P9, central level: Director, Child Health Division)

“Human and material resources are insufficient from the central to the district level. We have not been able to fulfill the demands.” (P8, central level: Chief, Nutrition Section at Child Health Division)

“In our school, we do not have teachers with enough knowledge about health issues. Also, we have not been able to use toilets properly and they are smelly because of lack of water facilities.” (P26, school level: Chairperson, School Management Committee)

“By using available funds, we can conduct activities that only meet the indicators proposed by our headquarters. We do not and cannot do all the activities of the SHN program.” (P1, aid agency level: SHN program coordinator)

c) Limited training opportunities

All the key informants agreed that training is essential to implement the SHN program effectively. Though the majority of the key informants from the central level and aid agencies stated that they have received different trainings, mixed responses were obtained from the key

informants at the district level and schools. Some of them mentioned that they had received the training once, while some were not even aware of such training.

“The training was conducted only once and ended and it was not repeated.” (P23, school: Health and physical education teacher)

“I am the focal person for the SHN program. I have worked in the health training department for 7 years but haven’t received any training related to school health yet and I also don’t know about it.” (P16, district level: Chief district officer, District Health Office)

Some key informants from central and aid agency level responded that the lack of trained human resources and turnover of trained staff members were also impediments during program implementation.

“As soon as he/she gets some training, he/she will be transferred somewhere else due to either personal interest or organizational changes.” (P12, central level: Deputy Director of Education Division)

3.3.4 Sustainability

a) Sustainability of the program

Almost half of the key informants from different levels were positive regarding the sustainability of the program, while others were doubtful due to lack of resources and poor coordination between stakeholders.

“It is not sustainable. We don’t have enough resources. We have conducted it in two districts but could not expand it to other districts. So if resources are available, we can make it sustainable.”

(P9, central level: Director, Child Health Division)

b) Suggestions for sustainability of the program

Despite several challenges identified by the stakeholders during the implementation of SHN programs, all of them acknowledged that efforts should be made to make the program sustainable, because of its positive impact on students, schools, and communities. Some of the key informants

from the central level and aid agency suggested that MOE should also get actively involved in the program implementation. Besides, a few respondents at the central level mentioned that the program could be sustainable if it is integrated into the government system.

“The education sector should be more involved, as the Ministry of Education is also on board.”
(P4, aid agency: SHNP senior coordinator)

“The program will be sustainable if it is integrated into the government system. Aid agencies come once and they are gone, the District Education Office and communities cannot make the program sustainable by themselves.” (P4, aid agency: SHNP senior coordinator)

Some of the key informants also provided suggestions on resource generations. One of the key informants from the aid agency mentioned that the stakeholders should coordinate well to generate resources to make the program sustainable. Some key informants from the schools even mentioned that they tried to generate funds from local sources.

“In my opinion, the coordination between the stakeholders should also act on pulling up the resources for implementing the program and for its sustainability.” (P5, aid agency: SHNP head)

“Child clubs in schools organize Deusi-Bhailo program (cultural program) during Tihar festival and collect fund. The child clubs also charge membership fees to generate fund, which they use for school health and nutrition program activities” (P23, school: Resource person for SHN program)

Regarding training on SHN program implementation, stakeholders at districts and schools who had received training on SHN program implementation once suggested that such training should be more frequent and longer, and also mentioned that it should be expanded to other parts of the country making the program sustainable. They also suggested that all the teachers in the school should be trained.

“The training was conducted only once and such training should be conducted repeatedly.” (P23, school: Health and physical education teacher)

“We need basic training for all teachers. I don’t think training only one focal teacher is sufficient.” (P27, school: School principal)

3.4 Discussion

In this study, almost all the key informants appreciated the SHN program implementation in schools and the positive impact it has on students, schools, and communities. The positive impact included improved students’ health and education outcomes, improved school environment, and enhanced community awareness. However, key informants also identified key impediments in implementing the program: there was a lack of coordination between stakeholders, lack of resources, limited training opportunities, and doubts regarding the sustainability of the program.

SHN program implementation and impact

According to many participants in this study, a broad array of stakeholders was involved from central to school level in implementing the SHN programs based on the SHN strategy in the country. MOH and MOE were the lead institutions for implementing the program. Aid agencies were also playing significant roles in implementing programs in different parts of the country. At the district and school level, DOH, DOE, schools, health posts, local NGOs, female community health volunteers (FCHVs), youth clubs, and parents were actively involved. Understanding the roles of different stakeholders is essential to analyze the implementation process of a program (77).

The majority of key informants mentioned that after the implementation of SHN program in the schools, students had better access to different SHN services, better nutrition, safe drinking water, and hygiene and sanitation facilities. They also acknowledged that the program significantly improved students’ knowledge, awareness, and practices regarding health and hygiene issues. The improved practices included hand washing, using soap while hand washing, and wearing clean school uniforms. Child clubs and extra-curricular activities could have played a significant role in improving students’ health and nutritional knowledge and practices. Similar

child club activities are known to help students gain knowledge and learn life skills for their personal development in Nepal (78). Furthermore, better access to hygiene and sanitation facilities in schools due to the SHN program could be associated with students' better hygiene practices. Our previous quantitative study also showed that child clubs and special health classes were positively associated with students' higher health knowledge scores, and identified a positive association between better health and sanitation facilities and students' improved hygiene practices (65). The SHN program has also shown short- and long-term positive impact on students' attitude, practices, health, and academic outcomes worldwide (62, 79, 80).

Many key informants also mentioned that the program had a positive impact on students' health status, such as reduced worm infestations, diarrheal diseases, and anemia. Students' better access to SHN services such as deworming, iron and vitamin A supplementation might have played a significant role in the improved health outcomes. According to a few key informants, physical screening could have also prevented blindness and hearing loss in some students. Our previous study also showed a positive association between the SHN program and students' better health outcomes (65). Moreover, many key informants reported that students' school enrolment, retention, and attendance rates increased after implementation of the SHN program. This finding may imply that healthy students attend school more regularly and stay longer in schools, which can have a positive impact on their academic performance (81, 82).

Furthermore, this study showed that after implementing the SHN program in schools, more parents sent their kids to school with a tiffin and wearing a clean uniform. School children might have played a role as changing agents and generated awareness about nutrition, personal hygiene, and cleanliness at home and in their communities. These findings indicate that SHN program has helped to sensitize parents and community members about child-health-related issues and promoting healthy behaviors; therefore, they also benefited from the program. Moreover, parents and community members can also play a significant role in encouraging

children to practice healthy behaviors and keep their school environment clean, safe, and healthy (59). Similar findings were also reported in the end-line survey of the pilot SHN program conducted in Sindhupalchok and Syangja districts (41).

Challenges during program implementation

Despite the positive impact of the SHN program on students, parents, and communities, this study identified several barriers and challenges to implement the program. Some of the key informants from the central and aid agency level mentioned that horizontal coordination was lacking between the MOH and MOE. According to the institutional framework of the SHN strategy, the two ministries were the lead institutions to implement the program in Nepal, and aid agencies were the key implementing partners (19). However, some key informants mentioned that the MOH and its institutions at the central to local level were more active compared to the MOE. This suggests that only one sector was actively involved in the implementation of the SHN program in Nepal. A similar situation was reported in Lao PDR, where the education sector had a leading role in implementing the National School Health Policy in the country (22). A few studies have also reported a lack of coordination between the two ministries while implementing school health programs (22, 23, 28). This gap could have led to the lack of intensive planning at national level which might be one of the reasons why the program could not be scaled up in other parts of the country as expected (22). However, a few key informants in this study mentioned that regular meetings were held among the SHN network members at the central level to discuss program activities, achievements, and problems. These meetings might be helpful to improve program implementation (83).

Furthermore, most of the key informants identified insufficient funds and lack of material resources as the major hurdles to implement a sustainable nationwide comprehensive SHN program. Many schools did not have sufficient physical infrastructures or facilities to implement the program efficiently. In developing countries, a lack of resources has been a crucial operational

barrier to conduct the program (22-24). Our findings suggest that the SHN program in Nepal was not an exception. Aid agencies were one of the main sources of funding for the program in the country. However, the key informants from aid agencies also mentioned that they only had funds to implement the program in their target districts. Because of insufficient money, some schools even raised funds from parents and community members. This finding is encouraging and suggests that mobilizing community members to generate resources at the local level and reduce over-dependency on external aid agencies (25) may be effective to sustain SHN activities in Nepalese schools.

This study further showed that the lack of trained human resources to implement SHN was another key impediment. Although most of the key informants from the central and aid agency levels received and provided training to implement the SHN program, only some key informants from the district and school levels received the training. A few of them were not even aware of such training programs on SHN activities. Besides, only one focal teacher in each school was trained to conduct SHN activities and the students did not have access to the trained health professionals at schools. These findings indicate the dearth of trained human resources to conduct the program effectively. However, capacity building of human resources from the central to school levels is known to be requisite to improve and sustain the program (22, 84). A review study also reported that school health promoters required more training to overcome problems while implementing the health-promoting schools program (83). During the 4-year SHN pilot program in Sindhupalchok and Syangja districts, teachers and staff from the District Education Office and District Health Office were trained to conduct SHN program activities (41). In the present study, many key informants responded that after the pilot program ended, such training was not conducted anymore. Moreover, a few of them identified the turnover of trained staff as a challenge, which is similar to the findings of a study from Lao PDR (22). Therefore, our findings

suggest the need for regular and refresher training, and the establishment of training centers to generate trained manpower to implement the SHN program effectively and sustainably.

Sustainability of the program

Sustainability can be defined in two aspects, continuity in process and outcomes. It is more often viewed in terms of outcome with maintained or continued program activities (45). This study showed that the sustainability of the SHN program was a challenge because of insufficient material and human resources, and lack of strong leadership. The program sustainability depends on the government's strong leadership, long-term funds, and trained human resources (85, 86). Despite the challenges, all the key informants in this study unanimously agreed to provide their efforts to make the program sustainable, given its positive impact on students, schools, and communities. Sustainability of the program also depend on the adaptation and integration of the program in local system making it relevant and fit in the local setting (45). Some key informants in this study also mentioned that in some schools, communities provided their support and took the initiative to conduct SHN activities, suggesting that communities can play a significant role in making the program sustainable.

Chapter 4: General discussion, conclusion and recommendations

4.1 General discussion:

In this study, I aimed to understand the comprehensive picture of the SHN program implementation, its impact, challenges and sustainability in schools of Nepal. Therefore, I conducted a quantitative and a qualitative study simultaneously to explore in-depth the program implementation, sustainability of program activities, its effects, and the challenges of program sustainability. Qualitative and quantitative studies enabled me to confirm and strengthen the findings from both studies, and gain new insights of the study.

In the quantitative study, significantly higher proportions of students in SHN program schools recognized/ utilized school health services, hygiene and sanitation facilities like hand washing soap and place to wash hands after toilet use, and child club activities than in the comparison schools. Many participants in the qualitative study also responded that after the implementation of SHN program in the schools, students had better access to different school health services, better nutrition, safe drinking water, and better hygiene and sanitation facilities. The findings from both studies suggest that even after the completion of pilot SHN program, several SHN program activities might have been sustained in the pilot program schools and have been scaled up in other parts of the country making the program sustainable.

Furthermore, the quantitative study showed that the prevalence of worm infestation and diarrhea/ dysentery infection were significantly lower in the program group, even one year after the pilot program ended. Many key informants in the qualitative study also acknowledged that the program had a positive impact on students' health status, particularly reducing worm infestations, diarrheal diseases, and anemia. These findings from both studies also imply that the effects of SHN program have been sustained to certain extent.

In this study, I was able to understand about the impact of SHN program on students' health as well as educational outcomes through the qualitative data. However, I was not able to measure educational outcomes in the quantitative part of the study. Many key informants in

qualitative study reported that students' school enrolment, retention, and attendance rates increased after implementation of the SHN program. This could be because both the quantitative and qualitative results revealed that the SHN program brought positive changes on students' health outcomes therefore making students healthier. Studies have shown that healthy students attend school more regularly and stay longer in schools, which can have a positive impact on their academic performance (81, 82). In addition, the qualitative findings showed that the positive changes of the SHN program were not limited to students only. It was extended to the household and community level. I was not able to capture these findings in the quantitative part of the study due to limited number of variables I have measured through students. Therefore, qualitative part has complemented the quantitative part in this study.

Furthermore, the qualitative part in this study provided a deeper understanding of the linkage between the SHN program implementation process, its impact, challenges and its sustainability in Nepal, which quantitative study could not reveal. It included all the stakeholders involved from the central level to school levels and revealed their perceptions about the impact of the program, several operational challenges faced during the program implementation and their suggestions to make the program better. The findings showed that stakeholders from different tiers acknowledged that the SHN program had positive changes on students, schools, and communities in Nepal. These findings from the qualitative study has added more insights and made this study comprehensive and rich in terms of data, which quantitative or qualitative study alone could not have done. Therefore, combining the findings from both studies had the advantage of drawing on the strengths of both studies and understanding the SHN program implementation in Nepal better (87).

Conducting quantitative and qualitative studies simultaneously provided me the opportunity to triangulate the findings from two studies. Findings from qualitative study have supported and strengthen most of the findings from the quantitative study. However, the findings

on students' health knowledge from two studies contradicted. Qualitative findings suggested that students' knowledge and awareness on health and hygiene practices improved due to the SHN program. Though I expected similar findings from the quantitative study, however, the mean health knowledge score was poor among the students in the SHN program group. It may be because the students in the comparison group may be exposed to other external sources of knowledge that had helped them to improve their knowledge, which was not measured in the study.

Strengths and limitations of the study

To my knowledge, this is the first study that explored the sustainability of the SHN program activities and its effects. It has revealed the comprehensive picture of the program implementation in Nepal and provided deeper understanding of its implementation, impact, challenges and sustainability in the country. The main strength of this study is the combination of qualitative and quantitative methods, which made the findings robust. For instance, the quantitative and qualitative data showed that the program activities and its effects have been sustained to certain extent. The quantitative study showed positive association of SHN program on students' health outcome such as diarrhea/ dysentery infection even one year after the pilot program completion. Qualitative data also revealed similar findings and supported the findings from the quantitative study. In addition, qualitative study further revealed that the SHN program activities has been scaled up to different parts of the country after the pilot SHN program ended, though several operational challenges still existed, ensuring the sustainability of the program. Furthermore, the qualitative data revealed the perceptions of diverse array of stakeholders actively involved in SHN program implementation including focal persons from MOH and MOE, aid agencies, DHO and DEO, school principals, focal teachers, resource persons, local NGO staffs, SMC members and school students.

However the findings of this study must be interpreted with several limitations. First, the quantitative part of the study was a cross sectional study therefore causality cannot be established. I did not have the baseline data to compare the changes over the time within the same group of students. The pre-and post-intervention data would have been the preferred method of choice however the program was completed one year before this study was conducted.

Second, students self-reported the questionnaire, which might have led to over or under-reporting, leading to social-desirability bias. However, I collected the data in the absence of schoolteachers and kept student identities anonymous. Similarly, the key informants from the qualitative part of the study might have expressed the views that they thought I (investigator) wanted to hear, which might be leading to social desirability bias. However, I conducted interviews in the closed room in their office settings. I also assured them about the confidentiality of the information they provided and anonymity of their identity.

Third, the significant difference in general characteristics of students sample suggest that there could be possibility of sampling bias due to convenient sampling technique applied in this study. These findings may suggest that there was the possibility that the health outcomes of the students in the program group were already better than the comparison group before the SHN program started. However, in this study, 22.1% of students in the comparison group responded that they suffered from worm infestation. This number was very close to the prevalence of worm infestation among the students in the program group in the baseline survey, which was reported as 25.1% (41). Similarly, 23.7 % of students in the comparison group responded that they suffered from diarrhea/ dysentery, this data was also closer to the prevalence reported in the baseline survey of SHN program, which was 21.6% (41). In addition, 47.7% of student in the comparison group also responded that they suffered from toothache. This data was closer to the prevalence of dental caries among 12-13 years old school students reported in one of the studies conducted in

Nepal, which was 52% (33). Therefore, the similarities in prevalence of diarrheal infection, worm infestation and toothache reported by the students in comparison group and from baseline survey of pilot SHN program and another study from Nepal may suggest that the students' health status in the comparison group may not be very different than that of the students in the program group before the program started. Furthermore, in this study, the findings from the quantitative study were also supported by the findings from the qualitative part of the study.

Forth, the logistic regression models might suffer from cluster biases because while accounting for clustering effect of schools using fixed effect models, it led to sparse bias rather than removal of cluster effects in logistic regression models (88). This was because of lack of adequate number of students in some schools for several independent and outcome variables. Therefore, I did not adjust clustering effect of schools in the regression analyses.

Fifth, measuring the availability of SHN program activities at school level could be one of the important methods to evaluate SHN program at school level. However, I was not able to do so because I had not included the variables to measure them at school level.

4.2 Conclusion:

This study has presented the encouraging findings from the both quantitative and qualitative studies conducted among school students and stakeholders from different tiers, who were actively involved in SHN program implementation in Nepal. The findings have addressed two separate research questions and two study objectives of this study. Overall, this study presented the comprehensive picture of SHN program implementation, its impact, challenges and its sustainability in schools of Nepal. The study showed that if SHN programs activities are implemented comprehensively and sustainably, they might have sustainable positive impact in terms of behavior change and health outcomes among school children. In addition, the positive changes may not be limited to the students but might be extended into the family members and

in the communities. However, longitudinal scientific studies will be necessary to confirm the findings.

4.3 Recommendations:

This study highlights that stakeholders from all tiers should coordinate and collaborate adequately to continue their efforts to implement and expand the program nationwide and make it sustainable. Furthermore, MOH and MOE should jointly provide strong leadership and recognize their responsibilities to make the program activities and its positive impact sustainable. Frequent teachers' training and more number of teachers should be trained for conducting SHN program in schools. This study may also support the need to scale up SHN program in other parts of the country and ensure its sustainability because of its encouraging positive findings and its low cost.

This study also recommends that awareness campaigns and advocacy for the program are indispensable to pull more resources from relevant stakeholders. Besides, the government should implement programs to encourage schools to generate resources at the local level and discourage over-dependency on external sources to make the program sustainable. Furthermore, this study calls for longitudinal scientific studies on SHN program in Nepal to better understand its impact and challenges, which can help to guide policy makers to make SHN program sustainable.

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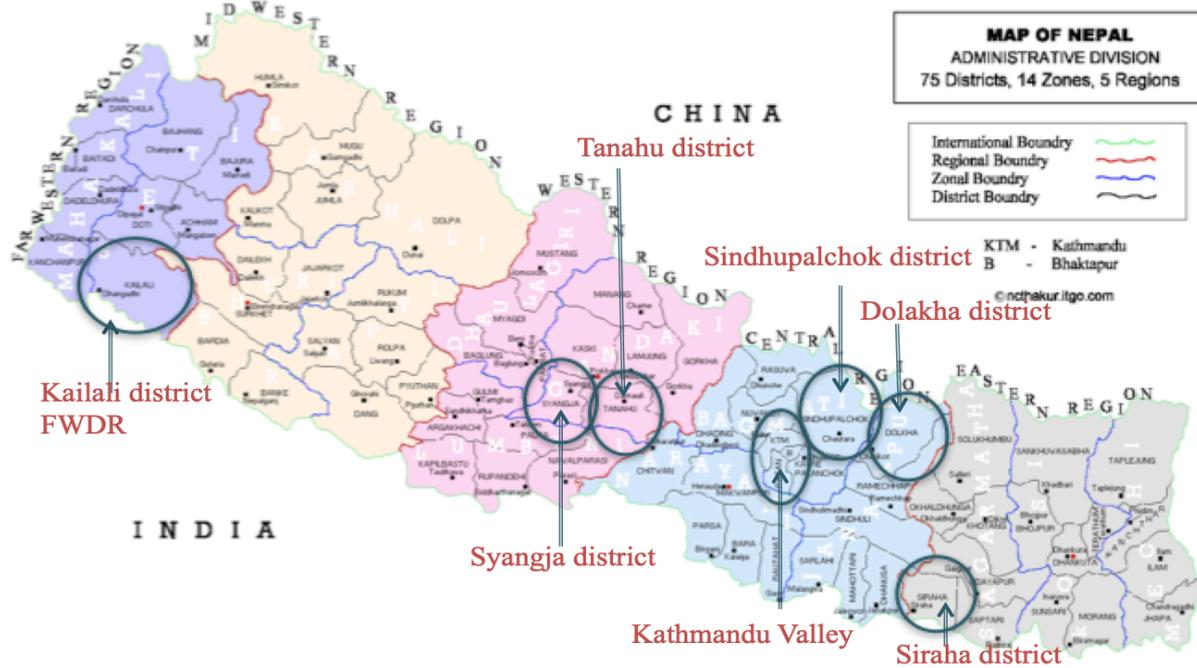
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Appendices

Appendix 1: Map of Nepal and study districts



Source: <http://www.maps-of-the-world.net>

Appendix 2: (English)

School code:.....

Student code:.....

Student Questionnaire

School Health and Nutrition Program in Nepal: Study on Program Implementation, Impact and Challenges

This research is to help us find out about school health and nutrition services and programs in your school and your health behaviours and skills, health outcomes, and health knowledge and attitudes. We are very grateful that you are taking part in this study and your views are very important to us.

Please remember that there is no right or wrong answer to these questions and nobody will judge your answers. We are only interested in what people like you think and feel about the topics in the questionnaire.

Also, nobody except the researcher will see your questionnaire. Your answers are confidential and we will not pass them to teachers, parents or anyone else. When we report back on the findings of our research, we will not identify you or any other individual with the answers they have given to us.

Please put a tick in the box or write in an answer where asked.

S.N	Questions												
Q1.	What is your date of birth? Year/ Month/ Day												
Q2.	What is your gender? Male <input type="checkbox"/> Female <input type="checkbox"/>												
Q3.	Which grade are you in? Grade 6 <input type="checkbox"/> Grade 7 <input type="checkbox"/> Grade 8 <input type="checkbox"/>												
Q4.	<table border="1"> <tr> <td>Brahmin/ Chhetri</td> <td><input type="checkbox"/></td> <td>Newar</td> <td><input type="checkbox"/></td> <td>Janjati (Gurung, Magar, Tamang, Rai etc.)</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Madheshi</td> <td><input type="checkbox"/></td> <td>Dalit (Damai/ Kami/ Sarki etc.)</td> <td><input type="checkbox"/></td> <td>Others.....</td> <td><input type="checkbox"/></td> </tr> </table>	Brahmin/ Chhetri	<input type="checkbox"/>	Newar	<input type="checkbox"/>	Janjati (Gurung, Magar, Tamang, Rai etc.)	<input type="checkbox"/>	Madheshi	<input type="checkbox"/>	Dalit (Damai/ Kami/ Sarki etc.)	<input type="checkbox"/>	Others.....	<input type="checkbox"/>
	Brahmin/ Chhetri	<input type="checkbox"/>	Newar	<input type="checkbox"/>	Janjati (Gurung, Magar, Tamang, Rai etc.)	<input type="checkbox"/>							
Madheshi	<input type="checkbox"/>	Dalit (Damai/ Kami/ Sarki etc.)	<input type="checkbox"/>	Others.....	<input type="checkbox"/>								
Q5.	<table border="1"> <tr> <td>What is your religion?</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Hindu</td> <td><input type="checkbox"/></td> <td>Buddhist</td> <td><input type="checkbox"/></td> <td>Christian</td> <td><input type="checkbox"/></td> </tr> </table>	What is your religion?					Hindu	<input type="checkbox"/>	Buddhist	<input type="checkbox"/>	Christian	<input type="checkbox"/>	
What is your religion?													
Hindu	<input type="checkbox"/>	Buddhist	<input type="checkbox"/>	Christian	<input type="checkbox"/>								

	Muslim	<input type="checkbox"/>	Jain	<input type="checkbox"/>	Others.....	<input type="checkbox"/>
Q6.	Whom do you stay with?					
	Father & mother	<input type="checkbox"/>	Mother only	<input type="checkbox"/>	Guardians	<input type="checkbox"/>
	Father only	<input type="checkbox"/>	Grand parents	<input type="checkbox"/>	Others.....	
Q7.	What is the level of your father's education?					
	Literate	<input type="checkbox"/>	Secondary school	<input type="checkbox"/>	Higher secondary / PCL	<input type="checkbox"/>
	Elementary school	<input type="checkbox"/>	Vocational school	<input type="checkbox"/>	College graduate and above	<input type="checkbox"/>
Q8.	What is the level of your mother's education?					
	Literate	<input type="checkbox"/>	Secondary school	<input type="checkbox"/>	Higher secondary / PCL	<input type="checkbox"/>
	Elementary school	<input type="checkbox"/>	Vocational school	<input type="checkbox"/>	College graduate and above	<input type="checkbox"/>
Q9.	What is your father's occupation?					
	Farming/ Agriculture	<input type="checkbox"/>	Government service	<input type="checkbox"/>	Non-government/ private service	<input type="checkbox"/>
	Business	<input type="checkbox"/>	Labour	<input type="checkbox"/>	Working abroad	<input type="checkbox"/>
	Not working	<input type="checkbox"/>	Expired	<input type="checkbox"/>	Others.....	<input type="checkbox"/>
Q10.	What is your mother's occupation					
	Farming/ Agriculture	<input type="checkbox"/>	Government service	<input type="checkbox"/>	Non-government/ private service	<input type="checkbox"/>
	Business	<input type="checkbox"/>	Labour	<input type="checkbox"/>	Working abroad	<input type="checkbox"/>
	Not working	<input type="checkbox"/>	Expired	<input type="checkbox"/>	Others.....	<input type="checkbox"/>
School health services						
Did you receive following SHN services in this school?						
Q11.	Deworming tablets				Yes..... No..... Don't know.....	
Q12.	Vitamin A				Yes..... No..... Don't know.....	
Q13.	Iron tablets				Yes..... No..... Don't know.....	
Q14.	First aid services				Yes..... No..... Don't know.....	
Q15.	Vision screening				Yes..... No..... Don't know.....	
Q16.	Hearing screening				Yes..... No..... Don't know.....	
Q17.	Dental screening				Yes..... No..... Don't know.....	
Q18.	Does your school keep students' health record?				Yes.....	

		No..... Don't know.....
Hygiene and sanitation facilities		
Q19.	Is there enough water for drinking at your school?	Yes..... No..... Don't know.....
Q20.	Does your school have toilets or latrines?	Yes..... No..... Don't know.....
Q21.	Do boys and girls have separate toilets?	Yes..... No..... Don't know.....
Q22.	Is there water available in or around the toilets?	Yes..... No..... Don't know.....
Q23.	Is there place to wash your hands after using the toilet at your school?	Yes..... No..... Don't know.....
Q24.	Is there place to wash your hands before eating at your school?	Yes..... No..... Don't know.....
Q25.	Is there enough water to wash hands at your school?	Yes..... No..... Don't know.....
Q26.	Is there soap to wash hands at your school?	Yes..... No..... Don't know.....
Q27.	Does your school have child clubs participating on nutrition, water and sanitation programs?	Yes..... No..... Don't know.....
Q28.	Does your school conduct special health classes, health related activities and programs while teaching health education?	Yes..... No..... Don't know.....
Health Knowledge		
Q29.	In your school, were you taught in any of your classes the benefits of healthy eating?	Yes..... No..... I do not know.....
Q30.	In your school, were you taught in any of your classes the importance of hand washing?	Yes..... No..... I do not know.....
Q31.	In your school, were you taught in any of your classes the importance of cleaning or brushing your teeth?	Yes..... No..... I do not know.....
Q32.	In your school, were you taught in any of your classes how to avoid worm infections?	Yes..... No..... I do not know.....
Q33.	In your school, were you taught in any of your classes where to get treatment for a worm infection?	Yes..... No..... I do not know.....
Q34.	In your school, were you taught in any of your classes about other infectious diseases like cough and cold, typhoid, eye infections etc.?	Yes..... No..... I do not know.....
Q35.	In your school, were you taught in any of your classes	Yes.....

	about anemia and its prevention?	No..... I do not know.....
Q36.	In your school, were you taught in any of your classes about iodine deficiency and its prevention?	Yes..... No..... I do not know.....
Q37.	In your school, were you taught in any of your classes about night blindness and vitamin A?	Yes..... No..... I do not know.....
Hygiene Practices		
Q38.	During the past 30 days, how often did you wash your hands before eating at the school?	Never..... Rarely..... Sometimes..... Always.....
Q39.	During the past 30 days, how often did you wash your hands after using the toilet or latrines at the school?	Never..... Rarely..... Sometimes..... Always.....
Q40.	During the past 30 days, how often did you use soap when washing your hands at school?	Never..... Rarely..... Sometimes..... Always.....
Q41.	How often do you brush your teeth?	Never..... Not regularly..... Once a day..... Twice a day.....
Health Outcomes		
Q42.	During the past 12 months, how often did you have a toothache or feel discomfort because of your teeth?	Never..... Sometimes..... Most of the time..... Always.....
Q43.	Did you suffer from diarrhoea or dysentery within past one month?	Yes..... No..... I do not know.....
Q44.	Did you suffer from worm infestation within past one month?	Yes..... No..... I do not know.....

Thank You.

Appendix 3: Student Questionnaire (Nepali)

विद्यालय कोड:.....

विद्यार्थी कोड:.....

कक्षा.....

विद्यार्थी प्रश्न पत्र

“नेपालमा विद्यालय स्वास्थ्य र पोषण सम्बन्धि कार्यक्रमहरु: एक बिस्तृत अध्ययन ”

प्यारा विद्यार्थी भाइ / बहिनीहरु,

जापान स्थित टोक्यो विश्वविद्यालय अन्तर्गत गरिने यस अनुसंधानले तपाईंहरुको विद्यालयमा भएका स्वास्थ्य र पोषण सम्बन्धी सुविधाहरु, तपाईंको स्वास्थ्य, बानी व्यवहारहरु र स्वास्थ्य सम्बन्धी तपाईंको ज्ञान र धारणाहरु बारे जानकारी प्राप्त गर्न सहयोग गर्नेछ। तपाईंको सहभागिताका लागि हामी धेरै आभारी छौं | तपाईंका विचारहरु यस अनुसंधानकालागि एकदम महत्वपूर्ण छन् र भविष्यमा विद्यालय स्वास्थ्य सम्बन्धी कार्यक्रम बनाउन मद्दत गर्ने छ |

तल दिइएका प्रश्नहरुका कुनै सहि अथवा गलत जवाफ भन्ने छैनन् | तपाईंका जवाफहरुलाई कसैले पनि मुल्यांकन गर्ने छैनन् | विद्यालयमा स्वास्थ्य शिक्षा र स्वास्थ्य सुविधाहरु बारे तपाईं जस्ता विद्यार्थीहरुले कस्तो अनुभव गर्नुभएको छ भन्ने थाहा पाउनु नै यस अनुसंधानको प्रमुख उद्देश्य हो |

त्यस माथि, सोधकर्ता र यस अनुसंधानसंग सम्बन्धित व्यक्तिहरुले बाहेक अरु कसैले पनि तपाईंले यस प्रश्न पत्रमा दिनु भएका जवाफहरु हेर्ने छैनन् | तपाईंका जवाफहरु गोप्य रहनेछन्, तपाईंका शिक्षकहरु, अभिभावकहरु तथा अरु कसैले पनि हेर्ने सक्ने छैनन् | यस अनुसंधानको शिलशिलामा प्रकाशित हुने कुनै प्रतिबेदन तथा रिपोर्टहरुमा तपाईं तथा अरु कोहि सहभागीहरुको नाम उल्लेख हुने छैन |

कृपया सबै प्रश्नहरु राम्रो संग पढेर आफुलाई सबैभन्दा मिल्ने उपयुक्त एउटा उत्तरमा मात्र सहि चिन्ह लगाउनु होला | तपाईंका कुनै पनि जिज्ञासा भए यहाँ उपस्थित सोधकर्तासंग सोध्न सक्नु हुनेछ |

संख्या	प्रश्नहरु
Q1.	तपाईं कति वर्षको हुनुभयो ? वर्ष
Q2.	तपाईंको लिङ्ग के हो ? 1) महिला 2) पुरुष
Q3.	तपाईं कुन कक्षामा पढ्नु हुन्छ ? 1) कक्षा ६ 2) कक्षा ७..... 3) कक्षा ८

Q4.	तपाईं कुन जातीको हुनुहुन्छ? 1) ब्राम्हण/ छेत्री..... 2) नेवार 3) जनजाती (गुरुङ/ मगर/ तामांग/ राई आदि)..... 4) मदेसी 5) दलित (दमाई/ कामी/ सार्की)..... 6) अन्य
Q5.	तपाईंको धर्म कुन हो? 1) हिन्दु..... 2) बौद्ध..... 3) क्रिस्चियन 4) मुस्लिम 5) जैन 6) अन्य
Q6.	तपाईं कोसंग बस्नु हुन्छ? 1) बुवा र आमा..... 2) आमा मात्र 3) बुवा मात्र 4) अरु अभिभावक 5) संयुक्त परिवारमा 6) अन्य
Q7.	तपाईंको बुवाले कति पढ्नुभएको (अध्ययन) छ? 1) अनपढ..... 2) साधारण लेख-पढ गर्न सक्ने..... 3) प्राथमिक तह (१-५ कक्षा)..... 4) निम्न माध्यामिक तह (६-८ कक्षा)..... 5) माध्यामिक / SLC तह (९-१० कक्षा) 6) उच्च माध्यामिक तह(११-१२ कक्षा) 7) कलेज वा सो भन्दा माथि 8) सिप मुलक तालिम
Q8.	तपाईंको आमाले कति पढ्नुभएको (अध्ययन) छ ? 1) अनपढ..... 2) साधारण लेख-पढ गर्न सक्ने..... 3) प्राथमिक तह (१-५ कक्षा)..... 4) निम्न माध्यामिक तह (६-८ कक्षा)..... 5) माध्यामिक / SLC तह (९-१० कक्षा) 6) उच्च माध्यामिक तह(११-१२ कक्षा) 7) कलेज वा सो भन्दा माथि 8) सिप मुलक तालिम
Q9.	तपाईंको बुवाले के काम गर्नुहुन्छ ? 1) कृषि/ खेती पाती 2) जागिर 3) व्यापार 4) ज्यालादारी काम 5) विदेशमा काम गर्नुहुन्छ 6) काम गर्नु हुँदैन

	7) बुवा हुनुहुन्न	8) अन्य
Q10.	तपाईंको आमाले के काम गर्नुहुन्छ ?	
	1) कृषि/ खेती पाती	2) जागिर
	3) व्यापार	4) ज्यालादारी काम
	5) विदेशमा काम गर्नुहुन्छ	6) काम गर्नु हुँदैन
	7) बुवा हुनुहुन्न	8) अन्य

विद्यार्थीहरूद्वारा विद्यालय स्वास्थ्य सुविधाहरूको प्रयोगमा सुधार

Q11.	तपाईंले एक वर्ष भित्र विद्यालयमा पेटको जुकाको औषधी खानुभएको छ?	1) छ..... 2) छैन..... 3) थाहा भएन.....
Q12.	तपाईंले एक वर्ष भित्र विद्यालयमा मिटामिन ए क्याप्सुल खानुभएको छ?	1) छ..... 2) छैन..... 3) थाहा भएन.....
Q13.	तपाईंले एक वर्ष भित्र विद्यालयमा आइरन चक्की खानुभएको छ?	1) छ..... 2) छैन..... 3) थाहा भएन.....
Q14.	तपाईंको विद्यालयमा प्राथमिक उपचार सेवाका सामाग्रीहरू छन्?	1) छन्
		2) छैनन्
		3) थाहा भएन.....
Q15.	एक वर्ष भित्र तपाईंको विद्यालयमा तपाईंको आँखाको जाँच भएको छ?	1) छ..... 2) छैन..... 3) थाहा भएन.....
Q16.	एक वर्ष भित्र तपाईंको विद्यालयमा तपाईंको कानको जाँच भएको छ?	1) छ..... 2) छैन..... 3) थाहा भएन.....
Q17.	एक वर्ष भित्र तपाईंको विद्यालयमा तपाईंको दाँतको जाँच भएको छ?	1) छ..... 2) छैन..... 3) थाहा भएन.....
Q18.	तपाईंको विद्यालयले विद्यार्थीहरूको स्वास्थ्य सम्बन्धी रेकर्ड राखेको छ ?	1) छ..... 2) छैन.....

		3) थाहा भएन.....
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विद्यालयको स्वस्थ वातावरणमा सुधार

Q19.	के तपाईंको विद्यालयमा पुग्ने गरी पिउने पानी उपलब्ध छ?	1) छ..... 2) छैन..... 3) थाहा भएन.....
Q20.	तपाईंको विद्यालयमा शौचालय छ ? (यदि शौचालय छैन भने Q25. मा जानुहोला)	1) छ..... 2) छैन..... 3) थाहा भएन.....
Q21.	केटाहरु र केटीहरुका लागि छुट्टा छुट्टै शौचालय छ ?	1) छ..... 2) छैन..... 3) थाहा भएन.....
Q22.	तपाईंको विद्यालयका शौचालयहरु भित्र वा वरिपरि पानी उपलब्ध छ?	1) छ..... 2) छैन..... 3) थाहा भएन.....
Q23.	तपाईंको विद्यालयमा शौचालय प्रयोग गरे पछि हात धुने ठाउँ छ?	1) छ..... 2) छैन..... 3) थाहा भएन.....
Q24.	तपाईंको विद्यालयमा खाजा खानु अगाडी हात धुने ठाउँ छ?	1) छ..... 2) छैन..... 3) थाहा भएन.....
Q25.	तपाईंको विद्यालयमा हात धुनको लागि पुग्ने गरी पानी छ?	1) छ..... 2) छैन..... 3) थाहा भएन.....
Q26.	तपाईंको विद्यालयमा हात धुनको लागि साबुनको व्यवस्था छ?	1) छ..... 2) छैन..... 3) थाहा भएन.....
Q27.	तपाईंको विद्यालयमा स्वास्थ्य, पोषण तथा सरसफाई सम्बन्धी कार्यक्रम गर्ने कुनै बाल क्लब छ?	1) छ..... 2) छैन..... 3) थाहा भएन.....
Q28.	तपाईंको विद्यालयले स्वास्थ्य शिक्षा पढाउँदा स्वास्थ्य सम्बन्धी कुनै विशेष कक्षा, क्रियाकलाप वा कार्यक्रमहरु आयोजना गर्छ?	1) गर्छ..... 2) गर्दैन..... 3) थाहा भएन.....

विद्यार्थीहरूको स्वास्थ्य सम्बन्धी ज्ञान, सूचना र स्वभाव

Q29.	यस विद्यालयमा तपाईंलाई कुनै कक्षामा स्वस्थ खाना वा भोजनको बारेमा पढाइयो?	1) पढाइयो..... 2) पढाइएन..... 3) थाहा भएन.....
Q30.	यस विद्यालयमा तपाईंलाई कुनै कक्षामा हात धुनुको महत्व बारेमा पढाइयो?	1) पढाइयो..... 2) पढाइएन..... 3) थाहा भएन.....
Q31.	यस विद्यालयमा तपाईंलाई कुनै कक्षामा दाँत माइनुको महत्व बारेमा पढाइयो?	1) पढाइयो..... 2) पढाइएन..... 3) थाहा भएन.....
Q32.	यस विद्यालयमा तपाईंलाई कुनै कक्षामा पेटमा जुका पर्न बाट बच्ने उपायहरू बारेमा पढाइयो?	1) पढाइयो..... 2) पढाइएन..... 3) थाहा भएन.....
Q33.	यस विद्यालयमा तपाईंलाई कुनै कक्षामा पेटमा जुका पर्दा उपचारको लागि कता जान्ने भन्ने बारेमा पढाइयो?	1) पढाइयो..... 2) पढाइएन..... 3) थाहा भएन.....
Q34.	यस विद्यालयमा तपाईंलाई कुनै कक्षामा अरु संक्रामक रोगहरू जस्तै रुगा खोकी, टाइफाइड, आखा पाकेको आदि बारेमा पढाइयो?	1) पढाइयो..... 2) पढाइएन..... 3) थाहा भएन.....
Q35.	यस विद्यालयमा तपाईंलाई कुनै कक्षामा रक्त अल्पता र त्यसको रोकथामका बारेमा पढाइयो?	1) पढाइयो..... 2) पढाइएन..... 3) थाहा भएन.....
Q36.	यस विद्यालयमा तपाईंलाई कुनै कक्षामा आयोडिनको कमी र त्यसको रोकथामका बारेमा पढाइयो?	1) पढाइयो..... 2) पढाइएन..... 3) थाहा भएन.....
Q37.	यस विद्यालयमा तपाईंलाई कुनै कक्षामा रतन्धो र भिटामिन ए बारेमा पढाइयो?	1) पढाइयो..... 2) पढाइएन..... 3) थाहा भएन.....

विद्यार्थीहरूको स्वास्थ्य सम्बन्धी बानीहरू र शिपहरू

Q38.	विगत 30 दिनमा, तपाईंले विद्यालयमा खाजा खानु अघि कत्तिको हात धुनुभयो?	1) कहिले पनि धोएन... 2) कहिले काहीं..... 3) धेरै पटक..... 4) सधैं.....
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Q39.	विगत 30 दिनमा, तपाईंले विद्यालयमा शौचालय (चर्पी) गइसकेपछि कत्तिको हात धुनुभयो?	1) कहिले पनि धोएन... 2) कहिले काहीं..... 3) धेरै पटक..... 4) सधैं.....
Q40.	विगत 30 दिनमा, तपाईंले विद्यालयमा हात धुँदा कत्तिको साबुन प्रयोग गर्नुभयो?	1) कहिले पनि गरेन... 2) कहिले काहीं..... 3) धेरै पटक..... 4) सधैं.....
Q41.	तपाईं कत्तिको दाँत माज्नु हुन्छ?	1) कहिले पनि माज्दिन. 2) कहिले कहीं..... 3) दिनमा एक पटक.... 4) दिनमा दुई पटक....

विद्यार्थीहरूको स्वास्थ्य स्थिति

Q42.	विगत 12 महिनामा, तपाईंको दाँत कत्तिको दुखेको थियो वा असजिलो महसुस भएको थियो?	1) कहिले पनि दुखेन वा भएन... 2) कहिले काहीं..... 3) धेरै पटक..... 4) सधैं.....
Q43.	विगत 1 महिनामा, तपाईंलाई झाडा पखाला लागेको वा आउँ परेको थियो?	1) थियो..... 2) थिएन..... 3) थाहा भएन.....
Q44.	विगत 1 महिनामा, तपाईंलाई पेटमा कुनै किसिमको जुका परेको थियो?	1) थियो..... 2) थिएन..... 3) थाहा भएन.....

धन्यवाद!!

Appendix 4: In-depth interview guide (English)

In-depth interview guide for implementing organizations and other stakeholders

1) Could you explain briefly about school health and nutrition program activities, which school are conducting/ your school is conducting?

2) What kind of supports do you get for conducting school health and nutrition program activities?

3) How do you evaluate the school health and nutrition program activities?

Do you have school health program at your school?

I. Leadership for Program Implementation

I1. Does your community have opinion leaders for school health and nutrition program?

Opinion leaders: persons whose opinion can influence on thinking way of those work in school health and nutrition program

1_Yes

2_No

8_Don't know

I2. Currently, is there support among opinion leaders or influential institutions from any sector for implementing this policy at community level?

1_Yes

2_No

8_Don't know

If yes

Which opinion leaders or institutions support implementing this program?	(2) What kind of support?
(I1a)	(I1a1)
(I1b)	(I1b1)
(I1c)	(I1c1)

I3. Currently, what is the lead institution for implementing the program at community level?

(I3a) Please explain.

I4. How effective is this institution’s leadership in implementing the program at community level?

1	2	3	4
Not effective	Somewhat effective	Mostly effective	Very effective

(I4a) Please explain.

II. Stakeholder Involvement in Program Implementation at your community level

Could you explain what kinds of stakeholders are involved at school level and community level?

II1. To what extent are different sectors involved in implementing the school health and nutrition program at community level?

1	2	3	4
None – only the key Ministry/agency	Limited involvement of various sectors	Moderate involvement of various sectors	Wide multi sectoral involvement

(II1a) Please explain.

(II1b) Involved from the beginning of the process?

II2. What, if any, other organizations could be involved in order to improve implementation of SHN program? (Hypothesized question)

Please identify organizations and explain why their participation would foster the program implementation.

Organization	(1) Reason
(II2a)	(II2a1)

(II2b)	(II2b1)
--------	---------

II3. In your opinion, how effective is the coordination among the various organizations that are implementing SHN program?

1	2	3	4
Not effective	Somewhat effective; many improvements needed	Mostly effective; some improvements needed	Very effective

(II3a) Please explain.

(II3b) If applicable, please describe any suggestions for improving this situation of coordination.

III. Implementation Planning and Resource Mobilization

III1. Have you ever seen *school health and nutrition guidelines* before?

1_Yes 2_No 8_Don't know

III2. How helpful is *the guidelines* in implementing the program?

1	2	3	4
Not helpful	Somewhat helpful	Helpful in most aspects	Very helpful

(III2a) Please explain.

III3. Do you have any suggestions for making the *school health and nutrition guidelines* more useful for implementing organizations or agencies?

III4. Did your school receive training/capacity building on specific issues related to implementing the policy?

1_Yes

2_No

8_Don't know

(III4a) How effective was the training in preparing you or your organization for the program implementation?

1	2	3	4
Not effective	Limited effectiveness	Mostly effective	Very effective

(III4b) Why? Please explain.

(III4c) Please describe any areas in which you need training/capacity building to better implement the program.

Let me move the questions to financial issues.

III5. Is there a mechanism to keep sustainable funding for implementing your school's school health and nutrition program?

1_Yes

2_No

8_Don't know

(III5a) Please explain the mechanism.

(III5b) How can we make the program sustainable financially, please explain.

III6. From what sources does your organization receive funding to implement activities under the national school health policy? *Check all that apply.*

- (a)_ Government
- (b)_ Donor
- (c)_ Private sector
- (d)_ Insurance
- (e)_ Other (please specify) _____

III7. How sufficient are the funds your organization has available to carry out its roles and responsibilities under the national school health policy?

1	2	3	4
Not sufficient	Somewhat sufficient	Mostly sufficient	Completely sufficient

(III7a1) Please explain.

(III7a2) What kind of barriers/problems are you facing?

--

**(III7b) What key activities would you be able to conduct with additional funding?
(Hypothesized question)**

Activity
(III7b1)
(III7b2)
(III7b3)

III8. Please rate the sufficiency (both in terms of quality and quantity) of your organization's human and material resources to fulfill its roles and responsibilities under the policy. Please describe the difficulties, challenges, or consequences arising from any insufficiencies.

In this section, please double check that that responses refer to activities under the policy, not the organization, in general.

Resources		Sufficiency of resources	
		(1) Quantity (How would you rate the current quantity of resources?) <i>1= insufficient</i> <i>2= somewhat sufficient</i> <i>3= mostly sufficient</i> <i>4 = completely sufficient</i>	(2) Quality (How would you rate the current quality of resources?) <i>1= insufficient</i> <i>2= somewhat sufficient</i> <i>3= mostly sufficient</i> <i>4 = completely sufficient</i>
(III8a)	Human Resources (Quantity refers to numbers of personnel; quality refers to trained personnel)	Please explain why? <i>Difficulties, challenges?</i>	Please explain why? <i>Difficulties, challenges?</i>
(III10b)	Infrastructure/ Facilities	Please explain why? <i>Difficulties, challenges?</i>	Please explain why? <i>Difficulties, challenges?</i>
(III10c)	Equipment/ Supplies	Please explain why? <i>Difficulties, challenges?</i>	Please explain why? <i>Difficulties, challenges?</i>
(III10d)	Information	Please explain why? <i>Difficulties, challenges?</i>	Please explain why? <i>Difficulties, challenges?</i>

(III10e)	Others	Please explain why? <i>Difficulties, challenges?</i>	Please explain why? <i>Difficulties, challenges?</i>
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IV. Operations and Services in schools

Please remind the key informant that he/she should focus on the roles, responsibilities, or activities that are designed to achieve the SHN program goals. The answers in this section should reflect issues related only to implementing the program and not the general status of the organization.

Please note that some questions in this section are most relevant to organizations that have service delivery responsibilities under the program implementation. The core team should clarify in advance which questions may be skipped while interviewing non-service delivery organizations or the team should tailor the questions appropriately so that they can be asked of other stakeholders as well.

IV1. Are you aware of any barriers to implementing SHN program components under the SHN strategy objectives?

1_Yes

2_No

8_Don't know

If yes, collect information below; otherwise, skip to next question

Service	(a) Barrier/Challenge	(b) How have you addressed this?
1 Personal Hygiene and Life Skills	(IV11a)	(IV11b)
2 School Environment	(IV12a)	(IV12b)
3 Diseases Control and Prevention	(IV13a)	(IV13b)
4 Health Care and Health Services	(IV14a)	(IV14b)
5 Cooperation between School and Community	(IV15a)	(IV15b)

IV2. Are you aware of any barriers to implementing SHN program components under the SHN strategy objectives?

1_Yes

2_No

8_Don't know

Service	(a) Positive changes	(b) How have you addressed this?
1 Personal Hygiene and Life Skills	(IV21a)	(IV21b)
2 School Environment	(IV22a)	(IV22b)

3 Diseases Control and Prevention	(IV23a)	(IV23b)
4 Health Care and Health Services	(IV24a)	(IV24b)
5 Cooperation between School and Community	(IV25a)	(IV25b)

V. Feedback on Progress and Results

Feedback (Upper → Lower, or Parallel).

V1. Is your school receiving feedback on how the program is being implemented overall?

1_Yes

2_No

8_Don't know

If yes

(V1a) What type of information?
(V1b) From whom?

(V2) How helpful is this feedback to you in your position?

1	2	3	4
Not helpful	Somewhat	Mostly helpful	Very helpful

(V2a) Please explain.

(V2b) What additional information would you like to receive regarding the process of SHN program implementation, if any?

VI. Overall Assessment

VI1. Overall, currently, how well do you think the program is being implemented?

1	2	3	4
Not being implemented	Partly implemented	Many parts of the program are being implemented	Overall, implementation is proceeding very well

(VI1a) Please explain.

VI2. In implementing this program, have you observed any unanticipated or unintended effects?

1_Yes

2_No

8_Don't know

(VI2a) Please explain.

VI3. Do you think the program is sustainable?

1_Yes

2_No

8_Don't know

(VI3a) Why do you think so? Please explain.

(VI4) Do you know/have any positive or negative experiences of sustainability of this program?

1_Yes

2_No

8_Don't know

(VI4a) If yes, please explain.

VI5. In the process of implementing the program, which initiatives/activities at the local or national levels have been successful or serve as lessons learned? Please explain. (Best Practice)

VI6. In addition to what you have already mentioned above, do you have any additional suggestions that would improve implementation of this policy? Please describe.

Thank you!

Appendix 5: In-depth interview guide (Nepali)

विद्यालय :.....

मिती:.....

अन्तरवार्ता दिने व्यक्ति:.....

विद्यालय स्वास्थ्य र पोषण सम्बन्धि कार्यक्रमहरु कार्यान्वयन गर्ने संस्थाहरु र अरु सम्बन्धित निकायहरुको अन्तरवार्ताका लागि निर्देशिका

- 1) के तपाईंले तपाईंको विद्यालयले गर्दै गरेका केहि विद्यालय स्वास्थ्य र पोषण सम्बन्धि क्रियाकलापहरुको बारेमा छोटकरीमा भनिदिन सक्नुहुन्छ?
- 2) विद्यालय स्वास्थ्य र पोषण सम्बन्धि क्रियाकलापहरु गर्नको लागि कस्ता खालका सहयोगहरु प्राप्त हुन्छ?
- 3) विद्यालय स्वास्थ्य र पोषण सम्बन्धि क्रियाकलापहरुलाई कसरी मुल्यांकन गर्नुहुन्छ?

A. विद्यालय स्वास्थ्य र पोषण सम्बन्धि क्रियाकलापहरुको कार्यान्वयनको लागि नेतृत्व

A1. के तपाईंको समुदायमा विद्यालय स्वास्थ्य र पोषण विषयमा कोही जानकार व्यक्तिहरु छन्?

जानकार व्यक्तिहरु भन्नाले व्यक्तिहरु जसको विचारले विद्यालय स्वास्थ्य र पोषण क्षेत्रमा कार्यहरु गर्नेहरुको विचारमा परिवर्तन ल्याउन सक्छ

1_छन्

2_छैनन्

8_थाहा छैन

A2. हिजो आज, राय वा सुझाव दिने व्यक्ति अथवा अगुवाहरु वा प्रभावशाली संस्थाहरुलाई सामुदायिक स्तरमा यस कार्यक्रम कार्यान्वयनको लागि अरु क्षेत्रबाट सहयोग मिलेको छ?

1_छ

2_छैन

8_थाहा छैन

कुन राय दिने व्यक्ति अथवा अगुवाहरु वा प्रभावशाली संस्थाले यस कार्यक्रम कार्यान्वयनमा सहयोग गरेका छन्?	2) कस्तो खालको सहयोग?
(A1a)	(A1a1)
(A1b)	(A1b1)
(A1c)	(A1c1)

A3. हिजो आज, सामुदायिक स्तरमा यस कार्यक्रम कार्यान्वयनको लागि कुन संस्था प्रमुख रूपमा देखिएको छ?

(A3a) कृपया थप स्पष्ट पार्नुहोस।

A4. सामुदायिक स्तरमा यस कार्यक्रम कार्यान्वयनको लागि यो संस्थाको नेतृत्व कतिको प्रभावकारी छ?

1	2	3	4
प्रभावकारी छैन	केहि प्रभावकारी छ	प्राय प्रभावकारी छ	धेरै प्रभावकारी छ

(A4a) कृपया थप स्पष्ट पार्नुहोस।

B. विद्यालय स्वास्थ्य र पोषण कार्यक्रम कार्यान्वयनमा सम्बन्धित निकायहरूको सामुदायिक स्तरमा सहभागिता

सामुदायिक स्तरमा कस्ता खालका निकायहरू सहभागी छन् भन्ने बारेमा तपाईंले बिस्तृत रूपमा जवाफ दिनसक्नु हुन्छ?

B1. सामुदायिक स्तरमा यस कार्यक्रम कार्यान्वयनको लागि विभिन्न क्षेत्रहरूको कतिको सहभागिता छ?

1	2	3	4
विभिन्न क्षेत्रहरूको सहभागिता छैन- मात्र मन्त्रालय /सम्बन्धित संस्था	विभिन्न क्षेत्रहरूको न्यूनतम सहभागिता	विभिन्न क्षेत्रहरूको मध्यम सहभागिता	बहुक्षेत्रबाट अधिकतम सहभागिता

(B1a) कृपया थप स्पष्ट पार्नुहोस।

(B1b) के यस प्रक्रियाको सुरुवात देखि नै सहभागिता थियो?

B2. यदि अरु कुनै संस्थाहरू पनि यो कार्यक्रमको सुधारको लागि सहभागी भए कसो होला?

कृपया त्यस्ता संस्थाहरू पहिचान गर्नुहोस र के कारणले ती संस्थाहरूको सहभागिताले कार्यक्रम कार्यान्वयनमा सहयोग गर्छ?

संस्था	(1) कारण
(B2a)	(B2a1)

(B2b)	(B2b1)
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B4. तपाईंको विचारमा, विभिन्न संस्थाहरू जसले यो कार्यक्रमका उद्देश्यहरू प्राप्तिका लागि कार्यनीतिहरू कार्यान्वयन गरिरहेका छन्, उनीहरू बीचको समन्वय कतिको प्रभावकारी छ?

1	2	3	4
प्रभावकारी छैन	प्रभावकारी छ; धेरै सुधार चाहिन्छ	धेरै प्रभावकारी छ; केहि सुधार चाहिन्छ	एकदम प्रभावकारी छ

(B4a) कृपया थप स्पष्ट पार्नुहोस।

(B4b) यदि लागु हुन्छ भने, कृपया यी संस्थाहरू बीचको समन्वयलाई सुधार गर्नको लागि बिस्तृत रूपमा कुनै सुझाव दिनुहोला।

C. कार्यक्रम कार्यान्वयन योजना र श्रोत परिचालन

C1. तपाईंले पहिले कहिल्यै विद्यालय स्वास्थ्य र पोषण निर्देशिका देख्नुभएको (हेर्नुभएको) छ?

1_छ 2_छैन 8_थहा छैन

C2. यो कार्यक्रम कार्यान्वयनको लागि विद्यालय स्वास्थ्य र पोषण निर्देशिका कतिको उपयोगी छ?

1	2	3	4
उपयोगी छैन	केहि उपयोगी छ	धेरै कुरामा उपयोगी छ	एकदम उपयोगी छ

(C2a) कृपया थप स्पष्ट पार्नुहोस।

C3. के तपाईंसंग विद्यालय स्वास्थ्य र पोषण निर्देशिकालाई अझ उपयोगी बनाउन कार्यान्वयन गर्ने संस्थाहरूको लागि कुनै सुझावहरू छन्?

C4. के तपाईंको विद्यालयले यस कार्यक्रम कार्यान्वयनसंग सम्बन्धित निश्चित विषयहरूमा क्षमता बिकाश वा प्रशिक्षण प्राप्त गरेको थियो?

1_छ

2_छैन

8_थाहा छैन

(C4a) तपाईं वा तपाईंको विद्यालयलाई कार्यक्रम कार्यान्वयन गर्न तयार बनाउन लागि त्यस प्रशिक्षण कतिको प्रभावकारी भयो?

1	2	3	4
प्रभावकारी भएन	केहि प्रभावकारी भयो	धेरै प्रभावकारी भयो	एकदम धेरै प्रभावकारी भयो

(C6b) किन? कृपया थप स्पष्ट पार्नुहोस।

(C6c) राम्रो कार्यक्रम कार्यान्वयनको लागि कुनै त्यस्तो क्षेत्रहरू जस्मा तपाईंलाई क्षमता बिकाश वा प्रशिक्षण आवश्यक छ कृपया थप स्पष्ट पार्नुहोस।

अब आर्थिक विषयका प्रश्नहरूलाई तिर लगौं।

C5. यस कार्यक्रम लागु गर्न आर्थिक सुनिश्चितताको लागि कुनै तरीका वा प्रक्रिया छ ?

1_छ

2_छैन

8_थाहा छैन

(C5a) कृपया त्यस प्रक्रिया थप स्पष्ट पार्नुहोस।

(C5b) यस कार्यक्रमलाई दीर्घकालीन बनाउनको लागि आर्थिक सुनिश्चितता कसरी गर्न सकिन्छ? कृपया स्पष्ट पार्नुहोला।

C6. तपाईंको संस्थाले यस नीति अन्तर्गत कार्यक्रमहरू संचालन गर्न कुन माध्यम वा श्रोतहरूबाट रकम प्राप्त गर्दछ? जुन जुन लागू हुन्छ, सबैमा चिन्ह लगाउनुहोला।

(a) सरकार

(b) दात्री संस्था

(c) निजी क्षेत्र

(d) बिमा कम्पनी

(e) अरु (कृपया तोक्नु होला) _____

C7. तपाईंको संस्थासंग भएको रकमले यस नीति अन्तर्गतका भूमिका र जिम्मेवारीहरू निभाउन कतिको पुग्दो वा पर्याप्त छ ?

1	2	3	4
पर्याप्त छैन	केहि हद सम्म पर्याप्त छ	धेरै पर्याप्त छ	पुरै पर्याप्त छ

(C7a1) कृपया थप स्पष्ट पार्नुहोस।

(C7a2) कस्तो खालको बाधा वा समस्याहरु भोगी राख्नुभएको छ?

(C7b) थप रकमले तपाईंहरुले के कस्ता महत्वपूर्ण गतिविधिहरु गर्नसक्नु हुन्छ? (काल्पनिक प्रश्न)

गतिविधि
(C7b1)
(C7b2)
(C9b3)

C8. कृपया तपाईंको संस्थासंग यस कार्यक्रम अन्तर्गत आफ्नो भूमिका तथा जिम्मेवारी पुरा गर्न मानवीय तथा भौतिक श्रोत र साधनहरु पर्याप्त छन् कि छैनन् मुल्यांकन गर्नुहोला (परिणाम र गुणस्तर दुबैमा)। कृपया यी कुनै श्रोत र साधनहरुका कमीले आएका समस्याहरु, चुनौतिहरु वा परिणामहरुको बारेमा बिस्तृत रुपमा बताउनु होला।

यो खण्डमा, कृपया पुन जाँच्नु होला कि दिईएका जवाफहरुले यस कार्यक्रम अन्तर्गतका क्रियाकलापहरुलाई जनाउँछन्, न कि समग्र रुपमा संस्थाका बारे।

श्रोत साधनहरु		श्रोत साधनहरुको पर्याप्तता	
		<p>(1) परिमाण (तपाईंले अहिलेको परिमाणलाई कसरी मुल्यांकन गर्नुहुन्छ ?)</p> <p>1= अपर्याप्त 2= केहि पर्याप्त 3= धेरै पर्याप्त 4 = पुरै पर्याप्त</p>	<p>(2) गुणस्तर (तपाईंले अहिलेको श्रोत साधनहरुको गुणस्तरलाई कसरी मुल्यांकन गर्नुहुन्छ?)</p> <p>1= अपर्याप्त 2= केहि पर्याप्त 3= धेरै पर्याप्त 4 = पुरै पर्याप्त</p>
(C8a)	मानवीय श्रोत साधनहरु (परिमाणले कर्मचारीको संख्यालाई जनाउँछ ; गुणस्तरले तालिम प्राप्त कर्मचारीलाई जनाउँछ)	<p>किन? कृपया बिस्तृत रुपमा किन को जवाफ दिनुहोला? समस्याहरु, चुनौतीहरु ?</p>	<p>किन? कृपया बिस्तृत रुपमा जवाफ दिनुहोला? समस्याहरु, चुनौतीहरु ?</p>

(C8b)	भौतिक संरचना / सुविधाहरू		
(C8c)	उपकरण वा सामग्री / उपलब्धता		
(C8d)	सूचना		
(C8e)	अन्य		

D. विद्यालयहरूमा क्रियाकलापहरू र सेवाहरू

कृपया अन्तरबार्ता दिने व्यक्तिलाई उनले यस कार्यक्रमका लक्ष्यहरू प्राप्त गर्नका लागि तयार गरिएका भूमिकाहरू, जिम्मेवारीहरू वा गतिविधिहरूमा बढी प्रकाश पार्नु पर्ने बारेमा सम्झाउनु होला। यस खण्डका जवाफहरूले त्यस्ता बुंदाहरू प्रतिबिम्बित गर्न जरुरी छ जुन यस नीति कार्यान्वयनसंग मात्र सम्बन्धित छन्, न कि संस्थाको समग्र अवस्थाका बारेमा सम्बन्धित छन्।

कृपया याद गर्नुहोला कि यस खण्डका केहि प्रश्नहरू यस कार्यक्रम अन्तर्गतका सेवाहरू प्रदान गर्न जिम्मवार संस्थाहरूका लागि एकदम उचित वा प्रासंगिक छन्। यो कुरा प्रस्ट पार्नुपर्छ कि, कोर टिमले पहिले नै सेवाहरू प्रदान नगर्ने संस्थाहरूलाई अन्तर्वार्ता लिंदा कुन कुन प्रश्नहरू नसोधे पनि हुन्छ, अथवा टिमले प्रश्नहरू अरु सम्बन्धित निकायहरू लाई पनि सोध्न मिल्ने गरेर अनुकूल बनाउनु पर्छ।

D1. के तपाईं यस कार्यक्रम कार्यान्वयन गर्ने क्रममा आएका कुनै समस्या वा बाधाहरू बारे अवगत हुनुहुन्छ ?

1_छ

2_छैन

8_थहा छैन

यदि छ भने त्यस बारेमा तलको बक्समा जानकारी लिनुहोला। नभए प्रश्न D2 मा जानुहोला।

सेवा [JS6]	(a) बाधा / चुनौती	(b) तपाईंले कसरी सम्बोधन/ समाधान गर्नुभयो ?
1) व्यक्तिगत सरसफाई र जीवन उपयोगी सिपहरू	(D11a)	(D11b)
2) विद्यालयको वातावरण	(D12a)	(D12b)
3) रोगहरूको नियन्त्रण र रोकथाम	(D13a)	(D13b)
4) स्वास्थ्य हेरचार र स्वास्थ्य सेवाहरू	(D14a)	(D14b)
5) विद्यालय र समुदाय बीचको सहकार्य	(D15a)	(D15b)

D2.के तपाईं यस कार्यक्रम कार्यान्वयन गर्ने क्रममा आएका कुनै सकारात्मक परिवर्तनहरू बारे अवगत हुनुहुन्छ?

1_छ

2_छैन

8_थहा छैन

सेवा	(a) सकारात्मक परिवर्तनहरू	(b) तपाईंले कसरी सम्बोधन/ समाधान गर्नुभयो?
1) व्यक्तिगत सरसफाई र जीवन उपयोगी सिपहरू	(D21a)	(D21b)
2) विद्यालयको वातावरण	(D22a)	(D22b)
3) रोगहरूको नियन्त्रण र रोकथाम	(D23a)	(D23b)
4) स्वास्थ्यको हेरचार र स्वास्थ्य सेवाहरू	(D24a)	(D24b)

5) विद्यालय र समुदाय बीचको सहकार्य	D25a)	(D25b)
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E. प्रगती तथा नतिजामा प्रतिक्रिया

प्रतिक्रिया (माथि देखि तल वा समानान्तर रूपमा)

E1. के तपाईंको विद्यालयले समग्र रूपमा यस कार्यक्रम समग्र रूपमा कसरी कार्यान्वयन भइरहेको भन्ने बारेमा प्रतिक्रिया प्राप्त गर्दै आएको छ?

1_छ

2_छैन

8_थहा छैन

(E1a) कस्तो खालको प्रतिक्रिया वा जानकारी?

(E1b) को बाट?

(E2) यो प्रतिक्रिया तपाईंको परिस्थितिमा तपाईंलाई कति को उपयोगी छ?

1	2	3	4
उपयोगी छैन	उपयोगी छ	धेरै जस्तो उपयोगी छ	एकदम धेरै उपयोगी छ

(E2a) कृपया थप स्पष्ट पार्नुहोस।

(E2b) यदि छ भने, यस कार्यक्रम कार्यान्वयन प्रक्रिया सम्बन्धी तपाईंले कस्तो खालको थप जानकारी पाउन चाहनु हुन्छ?

F. समग्र रूपमा मूल्यांकन

F1. समग्र रूपमा, वर्तमान अबस्थामा, यस कार्यक्रम कतिको प्रभाकारी रूपमा कार्यान्वयन भइरहेको ठान्नुहुन्छ?

1	2	3	4
कार्यान्वयन भइरहेको छैन	केहि कार्यान्वयन भइरहेको छ	नीतिका धेरै पक्षहरु कार्यान्वयन भइरहेको छ	समग्रमा, धेरै राम्रोसंग कार्यान्वयन भइरहेको छ

(F1a) कृपया थप स्पष्ट पार्नुहोस।

F2. यस कार्यक्रम कार्यान्वयनका क्रममा, तपाईंले कुनै अनुमान नगरेका वा अपेक्षा नगरेका असर वा प्रभावहरू देख्नु भएको छ?

1_छ

2_छैन

8_थहा छैन

(F2a) कृपया थप स्पष्ट पार्नुहोस।

F3. के तपाईंको विचारमा यो कार्यक्रम दीर्घकालीन वा दिगो छ?

1_छ

2_छैन

8_थहा छैन

(F3a) तपाईंलाई किन त्यस्तो लाग्छ, कृपया थप स्पष्ट पार्नुहोस।

(F4) तपाईंसंग यस कार्यक्रम अन्तर्गतका कार्यक्रमको दिगोपन बारे कुनै सकारात्मक वा नकारात्मक अनुभवहरू छन्?

1_छ

2_छैन

8_थहा छैन

(F4a) यदि छ भने, कृपया थप स्पष्ट पार्नुहोस।

F5. कार्यक्रम कार्यान्वयनको क्रममा, राष्ट्रिय वा स्थानीय तहहरूमा कस्ता खालका क्रियाकलापहरू / पहलहरू सफल भएका छन् वा त्यसबाट पाठ सिक्न योग्य खालका भएका छन्? कृपया बिस्तृत रूपमा जवाफ दिनुहोला। (सबै भन्दा राम्रो क्रियाकलाप)

F6. माथि उल्लेख गर्नुभएको कुराको साथसाथै के तपाईंसंग यो नीति कार्यान्वयनमा सुधार ल्याउन अरु कुनै थप सुझावहरू छन्? कृपया बिस्तृत रूपमा जवाफ दिनुहोला।

धन्यवाद।

Appendix 6: Information Sheet for Schools (English)

Information sheet for schools

School Health and Nutrition Program in Nepal: Study on Program Implementation, Impact and Challenges

This document explains the details of the study mentioned above. We request for your students' co-operation for a voluntary participation in this study. Therefore, please read this paper so that you are fully aware of the research process. This study already has ethical approval from The University of Tokyo in Japan and National Health Research Council, Nepal. If you have any questions regarding to this study, please feel free to ask the following persons listed below.

1. The study purpose:
School health and nutrition program has been considered as effective and sustainable intervention to promote health and education outcomes of school students. The purpose of this study is to understand factors that influence on the implementation process, its impact and challenges of school health and nutrition programs in Nepalese schools.
2. The study method:
If you decide for your students' participation in this study, it will take about 45 minutes for your students to fill up the questionnaire. In the questionnaire, students will be requested to answer questions about themselves, their background, school health services in their school and their health behaviours and skills, health outcomes, and health knowledge and attitudes.
3. Confidentiality:
Although the results of data analysis will be presented, any information your students provide will be strictly treated in a confidential manner and your students' identity will remain confidential during reporting of the results.
4. Voluntary participation:
Your students' participation in the study and agreement for answering the self-administered questionnaire are voluntary. They can refuse to answer any of the questions if they don't want to. They can withdraw from the study at any time (before, during or after study) without any harm regardless.
5. Incentives:
We will provide students an incentive, if you let them participate in this study.
6. The disclosure of data:
The *results* of this *research* may be presented at *conferences* or published in academic *journals*. However, *your students' identity will not be disclosed*.

If your students participate in the study, it would be a great help for school health policy implementation in the future. We would *highly appreciate* if you could kindly agree your school and your students' *participation* in this study.

This study is funded by the Ministry of Health, Labor and Welfare of Japan (Kosei Kagaku Research Grant, International Cooperation Research Grant 21S3).

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Appendix 7: Information Sheet for Schools (Nepali)

विद्यालयका लागि जानकारी पत्र

“नेपालमा विद्यालय स्वास्थ्य र पोषण सम्बन्धि कार्यक्रमहरु: एक बिस्तृत अध्ययन ”

प्रमुख अनुसन्धानकर्ता:

मसमिने जिम्बा, रचना मानन्धर श्रेष्ठ, मोए मियागुची (टोक्यो विश्वविद्यालय)

अरुण खनाल, राष्ट्रिय कार्यक्रम संयोजक, विद्यालय स्वास्थ्य तथा पोषण परियोजना, २००८-२०१२

यस पत्रले माथि उल्लेखित अध्ययनको बारेमा जानकारी गराउने छ। हामी यो अध्ययनमा तपाईंको विद्यालयमा अध्ययनरत विद्यार्थीहरुको सहयोग र स्वेच्छिक सहभागीताको लागि विनम्र अनुरोध गर्दछौं। तसर्थ, यो पत्र राम्रोसंग पढेर यस अध्ययनको प्रक्रिया बारे जानकार हुन विनम्र अनुरोध गर्दछौं। यस अध्ययनको लागि नेपाल स्थित राष्ट्रिय स्वास्थ्य अनुसन्धान विभागद्वारा स्वीकृति प्राप्त गरिएको छ। यदि यस अध्ययन सम्बन्धी कुनै जिज्ञासा भएमा कृपया तल उल्लेखित व्यक्तिहरुलाई सम्पर्क गर्न सक्नुहुनेछ।

१) अध्ययनको उद्देश्य:

प्रभावकारी र दिर्घकालीन विद्यालय स्वास्थ्य र पोषण कार्यक्रमहरुले विद्यार्थीहरुको स्वास्थ्य र शिक्षाको प्रबर्धनमा प्रभावकारी भुमिका खेल्दै आएको छ। नेपालको विद्यालयहरुमा विद्यालय स्वास्थ्य र पोषण कार्यक्रमहरु कार्यान्वयन प्रक्रियामा असर पुर्याउने तत्वहरुको बारेमा बुझ्ने प्रयास गर्नु यस अध्ययनको उद्देश्य हो।

२) अध्ययन प्रक्रिया:

यदी तपाईं यो अध्ययनमा यस विद्यालयका विद्यार्थीहरुको सहभागिताका लागि मन्जुरी दिनु हुनुहुन्छ भने, विद्यार्थीहरुलाई करिब ४५ मिनेट लामो प्रश्न पत्रमा आफ्ना जवाफहरु दिन आग्रह गरिने छ। प्रश्न पत्रमा विद्यार्थीहरुलाई उनको बारेमा, उनको विद्यालयमा भएका स्वास्थ्य सम्बन्धी सुविधाहरु, उनको स्वास्थ्य, बानी व्यवहारहरु र स्वास्थ्य सम्बन्धी उनको ज्ञान र धारणाहरु बारे प्रश्नहरु सोधिने छन्।

३) गोपनीयता:

डाटा विश्लेषणबाट प्राप्त प्रतिफल प्रकाशित गरिए पनि विद्यार्थीहरुले दिनु भएका कुनै पनि जानकारी एकदम गोपनीय तरिकाबाट प्रयोग गरिने छन् र यस प्रक्रियामा विद्यार्थीहरुको नाम कहीं कतै उल्लेख गरिने छैन।

४) स्वैच्छिक सहभागिता:

यस अध्ययनमा विद्यार्थीहरुको सहभागिता स्वैच्छिक हुनेछ । विद्यार्थीहरुलाई कुनै पनि प्रश्नको जवाफ दिने इच्छा नभएमा जवाफ दिन नकार्न सक्नुहुन्छ। विद्यार्थीहरुले कुनै पनि बेला (अन्तरबार्ताको क्रममा वा अन्तरबार्ता सकेपछि) कुनै पनि क्षति बिना यस अध्ययनबाट आफ्नो सहभागिता फिर्ता लिन सक्नुहुनेछ ।

५) प्रतिफल:

यदि तपाईंका विद्यार्थीहरुले यस अध्ययनमा भाग लिनुभयो भने हामी उहाँहरुलाई खाजाको व्यवस्ता गर्नेछौं।

६) डाटा प्रकाशन वा प्रस्तुतीकरण:

यस अध्ययनका प्रतिफलहरु कुनै समेल्लनमा प्रस्तुत गरिन वा बैज्ञानिक तथा शैक्षिक पत्र पत्रिकामा प्रकाशित गरिन सकिनेछ। तथापि विद्यार्थीको परिचय कतै उल्लेख हुने छैन।

यस स्कूलका विद्यार्थीहरूको सहभागीताले भविष्यमा नेपालको विद्यालय स्वास्थ्य रणनीतिको कार्यान्वयनमा धेरै सहयोग पुर्याउने छ। यदि तपाईंले आफ्ना विद्यार्थीहरूको सहभागीताको लागि स्वीकृति दिनुहुन्छ भने हामी निकै नै आभारी हुनेछौं।

केहि जिज्ञासा भएमा सम्पर्कको लागि:

१) रचना मानन्धर श्रेष्ठ,

टेलिफोन: ८१-०८०-५०८२-४८९२ (जापान), ९७७-०१-४७००६३५ (नेपाल)

इमेल: rachana_manandhar@hotmail.com

२) अरुण खनाल

राष्ट्रिय परियोजना संयोजक, विद्यालय स्वास्थ्य तथा पोषण परियोजना (SHNP), २००८- २०१२

टेलिफोन: ९७७-०१-४२८१९२८ (घर), ९७७-९८५१०३००९६ (मोबाइल)

Appendix 8: Information Sheet for In-depth interview participants (English)

Information Sheet for the Interview Participants

School Health and Nutrition Program in Nepal: Study on Program Implementation, Impact and Challenges

This study already has ethical approval from The University of Tokyo in Japan and National Health Research Council, Nepal.

1. The study purpose:
School health and nutrition program has been considered as effective and sustainable intervention to promote health and education outcomes of school students. The purpose of this study is to understand factors that influence on the implementation process, its impact and challenges of school health and nutrition programs in Nepalese schools.
2. The study method:
If you decide to be in the study, we will ask you to participate in the interview regarding factors that influence on the implementation process of school health related policies. This interview includes categorized or close-ended questions as well as questions that are open ended. We anticipate that this interview will last about one and a half hours. Each interview will be conducted by a interviewer and a research assistant. Only if you agree, the interview will be recorded for data analysis.
3. Confidentiality:
Although the results of data analysis will be presented, any information you provide will be strictly treated in a confidential manner and will not be identified in the reporting of the results.
4. Voluntary participation:
Your participation in the study and agreement for recording the interview are voluntary. You can refuse to answer any of the questions if you don't want to. You can withdraw from the study at any time (during or after study) without any harm regardless.
5. Incentives:
We will provide you an incentive, if you participate in this study.
6. The disclosure of data:
The **results** of this **research** may be presented at **conferences** or published in academic **journals**. However, **your identity will not be disclosed**.

If you participate in the study, it would be a great help for school health implementation in the future. The interview will be taken about one hour and half.

We would **highly appreciate** if you could kindly agree with **your participation** to this study.

1) Masamine Jimba, Rachana Manandhar Shrestha
Department of Community and Global Health, The University of Tokyo
7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan
Tel: +81-08-5082-4892
E-mail: rach.manandhar@gmail.com

2) Arun Khanal:
Former National Project Coordinator
School Health and Nutrition Project (SHNP)
Tel: 4-281928 (R), Mobile: 9851030096
Email: arunkhanal55@gmail.com

Appendix 9: Information Sheet for In-depth interview participants (Nepali)

जानकारी पत्र

“नेपालमा विद्यालय स्वास्थ्य र पोषण सम्बन्धि कार्यक्रमहरू: एक बिस्तृत अध्ययन ”

प्रमुख अनुसन्धानकर्ता:

मसमिने जिम्बा, रचना मानन्धर श्रेष्ठ, मोए मियागुची (टोक्यो विश्वविद्यालय)

अरुण खनाल, राष्ट्रिय कार्यक्रम संयोजक, विद्यालय स्वास्थ्य तथा पोषण परियोजना, २००८-२०१२

यस अध्ययनलाई जापान स्थित टोक्यो विश्वविद्यालय र नेपाल स्थित राष्ट्रिय स्वास्थ्य अनुसन्धान परिषदद्वारा अनुमोदन गरिएको छ।

१) अध्ययनको उद्देश्य:

प्रभावकारी र दिर्घकालीन विद्यालय स्वास्थ्य र पोषण कार्यक्रमहरूले विद्यार्थीहरूको स्वास्थ्य र शिक्षाको प्रबर्धनमा प्रभावकारी भूमिका खेल्दै आएको छ। नेपालको विद्यालयहरूमा विद्यालय स्वास्थ्य र पोषण कार्यक्रमहरू कार्यान्वयन प्रक्रियामा असर पुर्याउने तत्वहरूको बारेमा बुझ्ने प्रयास गर्नु यस अध्ययनको उद्देश्य हो।

२) अध्ययन प्रक्रिया:

यदी तपाईं यस अध्ययनमा भाग लिने निर्णय गर्नुहुन्छ भने हामी तपाईंलाई विद्यालय स्वास्थ्य तथा पोषण रणनीति कार्यान्वयन प्रक्रियामा असर पुर्याउने तत्वहरू सम्बन्धि अन्तरबार्तामा सहभागी हुन अनुरोध गर्दछौं। यस अन्तरबार्तामा वर्गीकृत वा बन्द तथा खुला प्रश्नहरू समावेश छन्। हामी यो अन्तरबार्ता १ देखि साढे एक घण्टा लाग्ने आशा गर्दछौं। यदी तपाईं स्वीकृति दिनु हुन्छ भने हामी यो अन्तरबार्ता डाटा विश्लेषणको लागि रेकर्ड गर्न चाहन्छौं।

३) गोपनीयता:

डाटा विश्लेषणबाट प्राप्त प्रतिफल प्रकाशित गरिए पनि तपाईंले दिनु भएका कुनै पनि जानकारी एकदम गोपनीय तरिकाबाट प्रयोग गरिने छन् र यस प्रक्रियामा तपाईंको नाम कहीं कतै उल्लेख गरिने छैन।

४) स्वैच्छिक सहभागिता:

यस अध्ययनमा तपाईंको सहभागिता र तपाईंले रेकर्ड गर्न दिनुभएको स्वीकृति स्वैच्छिक हुन्। तपाईंलाई कुनै पनि प्रश्नको जवाफ दिने इच्छा नभएमा जवाफ नदिन सक्नुहुन्छ। तपाईंले कुनै पनि बेला (अन्तरबार्ताको क्रममा वा अन्तरबार्ता सकेपछि) कुनै पनि क्षति बिना यस अध्ययनबाट आफ्नो सहभागिता फिर्ता लिन सक्नुहुन्छ।

५) प्रोत्साहन खर्च:

यदि तपाईंले यस अध्ययनमा सहभागी हुनुभयो भने प्रोत्साहन स्वरूप रु....प्रदान गरिने छ।

६) डाटा प्रकाशन वा प्रस्तुतीकरण:

यस अध्ययनका प्रतिफलहरू कुनै समेल्लनमा प्रस्तुत गरिन वा बैज्ञानिक तथा शैक्षिक पत्र पत्रिकामा प्रकाशित गरिन सकिनेछ। तथापि तपाईंको परिचय कतै उल्लेख हुने छैन।

तपाईं यस अध्ययनमा सहभागी हुनुभयो भने यसले भविष्यमा नेपालको विद्यालय स्वास्थ्य तथा पोषण रणनीतिको कार्यान्वयनमा धेरै सहयोग पुर्याउने छ। यस अन्तरबार्ता करिब साढे एक घण्टाको हुनेछ। यदि तपाईंले यस अध्ययनमा आफ्नो सहभागिताको लागि स्वीकृति दिनुहुन्छ भने हामी निकै नै आभारी हुनेछौं।

केहि जिज्ञासा भएमा सम्पर्कको लागि :

१) मसमिने जिम्बा, रचना मानन्धर श्रेष्ठ

टोक्यो विश्वविद्यालय,

७-३-१ होङ्गो, बुन्क्यो वार्ड, टोक्यो ११३-००३३, जापान

टेलिफोन: ८१-०८०-५०८२-४८९२ (जापान), ९७७-०१-४७००६३५ (नेपाल)

इमेल: rachana_manandhar@hotmail.com

२) अरुण खनाल

राष्ट्रिय परियोजना संयोजक, विद्यालय स्वास्थ्य तथा पोषण परियोजना (SHNP), २००८-२०१२

टेलिफोन: ९७७-०१-४२८१९२८ (घर), ९७७-९८५१०३००९६ (मोबाइल)

Appendix 10: Informed consent form for school principals (English)

Informed consent form for the School Principal

School name:.....

School code:.....

I was explained about the study “School Health and Nutrition Program in Nepal: A Mixed-method Study on Program Implementation, Impact and Challenges” with information sheet by the researcher. I have decided my students’ participation in this study after reading and understanding the contents of this study.

I understand:

1. The purpose and procedures of the study.
2. The contents of the questionnaires.
3. That my students will not be placed under any harm or discomfort.
4. That my students can withdraw from the study at any time (before, during or after study) without any harm.
5. That any information my students provide will be strictly treated in a confidential manner that they will not be identified in the reporting of the results.

Signing below means I have decided my students’ participation in the study and no one has forced me to allow my students’ participation in this study.

.....

Date

Signature of the school principal who gave the consent

.....

Date

Name/Signature of the person received the consent

Appendix 11: Informed consent form for school principals (Nepali)

विद्यार्थीहरूको सहभागिताको लागि मन्जुरीपत्र

विद्यालयको नाम.....

विद्यालयको कोड

यस “नेपालमा विद्यालय स्वास्थ्य र पोषण सम्बन्धि कार्यक्रमहरू: एक बिस्तृत अध्ययन ” विषयमा अनुसन्धानकर्ताबाट मलाई जानकारी पत्र सहित जानकारी गरियो। यस अध्ययनका सामग्रीहरू राम्रोसंग पढेर र बुझेर मैले यो अध्ययनमा यस विद्यालयका विद्यार्थीहरूको सहभागिताको लागि मन्जुर भएको हुँ।

तल दिइएका बुंदाहरू मैले राम्रोसंग बुझेको/ बुझेकी छु :

१. यस अध्ययनको उद्देश्य र अनुसंधानका प्रक्रियाहरूका बारे।
२. विद्यार्थीहरूले उत्तर दिन नचाहेका कुनै पनि प्रश्नहरूको उत्तर नदिन सक्नेछ।
३. विद्यार्थीहरूले यस अनुसंधानबाट कुनै पनि बेला (अनुसंधानको बेला वा अनुसंधान सकेपछि) कुनै नोक्सानी बिना आफ्नो सहभागिता फिर्ता लिन सक्नेछु ।
४. विद्यार्थीहरूले दिएका जानकारीहरू गोपनीय तरिकाबाट प्रयोग गरिने छन् र उनको नाम कुनै पनि प्रकाशित रिपोर्ट तथा लेखहरूमा प्रकाशित हुने छैन ।

तल हस्ताक्षर गर्नुको मतलब मैले यो अध्ययनमा यस विद्यालयका विद्यार्थीहरूको सहभागिताको लागि मन्जुरी दिनु हो र मलाई यसमा कसैले पनि जबरजस्ती गरेको छैन।

मिति:

.....

सहभागी विद्यालयको प्रधानाध्यापकको नाम र हस्ताक्षर

म यो पुष्टि गर्छु कि यो सहभागिताको मन्जुरी स्वैक्षिक समझदारीबाट प्राप्त गरिएको हो।

मिति:

.....

मन्जुरीपत्र पाउनेको नाम र हस्ताक्षर

Appendix 12: Informed consent form for In-depth interview participants (English)

Code no.....

Informed Consent Form for In-depth interview participants

I was explained about the study “School Health and Nutrition Program in Nepal: A Mixed-method Study on Program Implementation, Impact and Challenges” with information sheet by the researcher. I have decided my participation in this study after reading and understanding the contents of this study.

I understand:

1. The purpose and procedures of the study.
2. That I can refuse to answer any of the questions if I don't want to.
3. That I can withdraw from the study at any time (during or after study) without any harm.
4. That any information I provide will be strictly treated in a confidential manner that I will not be identified in the reporting of the results.

Signing below means I have decided to be in the study and no one has forced me to be in it.

Date / /

Name of Participant

I agree that the discussion will be recorded for data analysis.

Date / /

Name of Participant

I confirmed that the consent was obtained with voluntary agreement.

Date / /

Name/Signature of the person received the consent

Appendix 13: Informed consent form for In-depth interview participants (Nepali)

कोड नं

सहभागिताको लागि मन्जुरीपत्र

डिन, ग्राजुएट स्कूल अफ मेडिसिन, टोक्यो विश्वविद्यालय

यस “नेपालमा विद्यालय स्वास्थ्य र पोषण सम्बन्धि कार्यक्रमहरु: एक बिस्तृत अध्ययन ” विषयमा अनुसन्धानकर्ताबाट मलाई जानकारी पत्र सहित जानकारी गरियो। यस अध्ययनका सामग्रीहरु राम्रोसंग पढेर र बुझेर मैले मेरो सहभागिताको लागि मन्जुर भएको हुँ।

तल दिइएका बुंदाहरु मैले राम्रोसंग बुझेको/ बुझेकी छु:

१. यस अध्ययनको उद्देश्य र अनुसंधानका प्रक्रियाहरुका बारे।
२. मैले उत्तर दिन नचाहेका कुनै पनि प्रश्नहरुको उत्तर नदिन सक्नेछु।
३. मैले यस अनुसंधानबाट कुनै पनि बेला (अनुसंधानको बेला वा अनुसंधान सकेपछि) कुनै नोक्सानी बिना आफ्नो सहभागिता फिर्ता लिन सक्नेछु।
४. मैले दिएका जानकारीहरु गोपनीय तरिकाबाट प्रयोग गरिने छन् र मेरो नाम कुनै पनि प्रकाशित रिपोर्ट तथा लेखहरुमा प्रकाशित हुने छैन।

तल हस्ताक्षर गर्नुको मतलब मैले यस अध्ययनमा मेरो सहभागिताको लागि मन्जुरी दिनु हो र मलाई यसमा कसैले पनि जबरजस्ती गरेको छैन।

मिति:

.....

सहभागीको नाम र हस्ताक्षर

यस छलफल प्रक्रियालाई डाटा विश्लेषणको लागि टिपोट तथा रेकर्ड गरिनेछ भन्ने कुरामा म सहमत छु। मिति:

.....

सहभागीको नाम र हस्ताक्षर

म यो पुष्टि गर्छु कि यो सहभागिताको मन्जुरी स्वैक्षिक समझदारीबाट प्राप्त गरिएको हो।

मिति:

.....

मन्जुरीपत्र पाउनेको नाम र हस्ताक्षर

Appendix 14: Ethical approval from the University of Tokyo (Japanese)

(医)

審査番号	10293
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西暦 2013年10月31日

審査結果通知書 実施許可通知書

倫理委員会の設置者、実施機関の長
東京大学大学院医学系研究科・医学部長 殿

倫理委員会委員長
東京大学大学院医学系研究科・医学部倫理委員会
疫学・観察等研究倫理委員会

赤林 朗



審査依頼のあった件についての審査結果を下記のとおり通知いたします。

記

研究課題名	ネパールにおける学校保健政策の実施プロセスと持続可能性の関連、影響要因
審査結果	<input checked="" type="checkbox"/> 承認する <input type="checkbox"/> 条件付きで承認する <input type="checkbox"/> 変更を勧告する <input type="checkbox"/> 承認しない <input type="checkbox"/> 該当しない <input type="checkbox"/> 既承認事項の取り消し
審査事項 (審査資料)	<新規案件> <input checked="" type="checkbox"/> 研究の新規実施 <継続案件> <input type="checkbox"/> 研究に関する変更 <input type="checkbox"/> その他 ()
審査区分	<input checked="" type="checkbox"/> 委員会審査 (審査日: 西暦2013年10月28日) <input type="checkbox"/> 迅速審査 (審査日: 西暦 年 月 日)
指摘事項および理由・条件等	
備考	

研究責任者 神馬 征峰 殿

依頼のあった研究に関する審査事項について上記のとおり決定しましたので通知いたします。
倫理委員会での審査結果が承認となりましたので、研究の実施を許可いたします。

西暦 2013年10月31日

倫理委員会の設置者、実施機関の長
東京大学大学院医学系研究科・医学部長
宮園 浩平 (公印省略)

Appendix 15: Ethical approval from Nepal Health Research Council (Nepal)



Nepal Health Research Council

Estd. 1991

Ref. No.: 586

2 December 2013

Ms. Rachana Manandhar
Principal Investigator
Department of Community and Global Health
Global Health
The University of Oslo, Japan

Ref: **Approval of Research Proposal** entitles **School Health Policy in Nepal: A Comprehensive Study on Policy Implementation Process and Sustainability**

Dear Ms. Manandhar,

It is my pleasure to inform you that the above-mentioned proposal submitted on 07 November 2013 (Reg. no. 170/2013) please use this Reg. No. during further correspondence) has been approved by NHRC Ethical Review Board on 29 November 2013 (2070-08-14).

As per NHRC rules and regulations, the investigator has to strictly follow the protocol stipulated in the proposal. Any change in objective(s), problem statement, research question or hypothesis, methodology, implementation procedure, data management and budget that may be necessary in course of the implementation of the research proposal can only be made so and implemented after prior approval from this council. Thus, it is compulsory to submit the detail of such changes intended or desired with justification prior to actual change in the protocol.

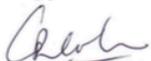
If the researcher requires transfer of the bio samples to other countries, the investigator should apply to the NHRC for the permission.

Further, the researchers are directed to strictly abide by the National Ethical Guidelines published by NHRC during the implementation of their research proposal and submit progress report and full or summary report upon completion.

As per your research proposal, the total research amount is US\$ 5,000.00 and accordingly the processing fee amounts to NRs. 9,970.00. It is acknowledged that the above-mentioned processing fee has been received at NHRC.

If you have any questions, please contact the research section of NHRC.

Thanking you.


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Dr. Guna Raj Lohani
Executive Chief