

**2010**

**AN ASSESSMENT OF SCHOOL  
DEWORMING PROGRAM IN  
SURKHET AND KAILALI  
DISTRICT**

**2010**

Nepal Health Research Council

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**Dr. Choplal Bhusal**

Executive Chairman

Nepal Health Research Council

## Abbreviations

BaSE	Backward Society Education
CBOs	Community Based Organizations
CHD	Child Health Division
DACC	District AIDS Coordination Committee
DEO	District Education Office
DPHO	District Public Health Office
DSHNCC	District School Health and Nutrition Coordination Committee
EMIS	Education Management Information System
FCHV	Female Community Health Volunteers
FWDR	Far Western Development Region
GoN	Government of Nepal
HI	Health Institution
HMIS	Health Management Information System
HP	Health Post
INGO	International Non Governmental Organizations
JICA	Japan International Cooperation Agency
KI	Key Informant
KII	Key Informant Interview
MCHW	Maternal and child health worker
MoE	Ministry of Education
MoHP	Ministry of Health and Population
MWDR	Mid Western Development Region
NGO	Non Governmental Organizations
NHRC	Nepal Health Research Council
NIMPE	National Institute of Malariology, Parasitology and Entomology
OPD	Out Patient Department
PDR	Public Democratic Republic
PHC	Primary Health Care
SDP	School Deworming Programme

SHP	Sub Health Post
S.L.C	School Leaving Certificate
SPSS	Statistical Package for Social Sciences
STH	Soil-Transmitted Helminth
VDC	Village Development Committee
VHW	Village Health Worker
WFP	World Food Programme
WHO	World Health Organization

## **Executive Summary**

Globally, one fourth of the people is infected with intestinal helminth and is particularly prevalent among school-aged children in developing countries, which produce adverse negative impacts on education, health, growth, and school performance of the children.

In Nepal School deworming program was started in fiscal year 2063/64 but till date there is no study conducted to see the coverage as well as the acceptance and effectiveness of the program. Hence, this type of assessment on one hand will provide the evidence of success of the program and in other hand will open door for evidence based design and effective implementation of more of such program.

This study was carried out to find out the coverage, perception, acceptability and effectiveness of school deworming program in hilly and terai part of mid-western and far western Nepal. It aims to provide policy makers and health sector personnel with greater understanding of current situation of school deworming program. This can help them in formulating plans for achieving optimal coverage as well as more acceptability and effectiveness of the program which help to improved health of school children.

An assessment was done in Surkhet and Kailali District of mid and far western development region of Nepal. A total of 10% of all primary schools of Surkhet and Kailali District were selected randomly. All together 83 school teacher and 493 parents were included in the study. One key informant was selected from each District Public Health Office (DPHO) and District Education Office (DEO). The data collection tool for the interview was comprised of pre-designed semi-structured questionnaire as per the objective of the study. Moreover, the record on school deworming programme was reviewed to collect the data on deworming coverage from school/health institution record.

The study found that the overall coverage of school deworming program was 92%. The coverage was a little bit higher in Kailali then in Surkhet.

The study revealed that, majority of teachers (98.8%) had knowledge about school deworming program. Most of the teachers got the information regarding school deworming program through health worker. Majority of the teachers (94%) told that the program was good for various reasons such as better for child health, prevention for worm infestation, and increased awareness among the people. Further 91.6% of the students participated voluntary for the intake of drug, 97.6% of student's intake drugs in the presence of the teacher and regarding provision of drug to those students who were ill in the day of drug distribution, it was found that majority of the schools (83.2%) provided drugs after they get well and resume the school.

The positive impacts seen by the teachers were improved health status (told by 66.3% teacher), increased school attendance rate (44.6% teacher). 48% of teachers told that health worker would play the better role for distributing the drugs as they were directly related to the health and have more knowledge regarding health issues, more trustworthy and the classes would not be hampered.

During program implementation phase 26.5% teachers faced some problems such as lack of provision of enough medicine timely from DPHO. Regarding enrollment of child out of schools in this program, we found that 53% of teachers told that Female Community Health Volunteers could be mobilized to include the children out of school. The suggestions given towards the program by the teacher were continuation of the program (48.2%), information oriented program (27.7%), and 18.0% gave emphasis on training of teachers.

Similarly, 448 out of 493 Parents had knowledge about worm infestation. It can be seen that most of the parents (41.4%) know that worm infestation was due to drinking dirty water. About thirty percent of Parents reported that preventive measures of worm infestations are hygienic foods and avoid stale food. Majority of respondents (98.6%) have knowledge that worm infestation must be treated to get cured. About 87.6% have heard about school deworming program and among them 70% knew about the program through their children. Majority (98%) of the respondent had good response toward the school deworming program. About 51% of parents told that teacher would play the better

role for distributing the drugs as they are more knowledgeable group of people, they are second parents and students obey them. Similarly, 99% parents want continuation of the program in future as well. More than half of the respondents noticed change at their child health after having medicine. The most common change they noticed after deworming is decreased abdomen pain (39.3%).

This study recommended that recording and reporting system should be strengthened and incorporate data to Health Management Information System (HMIS) or Education Management Information System (EMIS) by developing uniform format. Similarly, adequate and timely supply of budget and medicine should be ensured. Provision of focal teacher and orientation to them, health worker and member of health management committee about the program is essential for more effectiveness of the program. And also parents should be adequately informed about the program. Likewise, schedule of the program should be uniform and collaborative action should be done to address sanitation and hygiene factor.

Hence, we came to the conclusion that overall perception of the parents and teachers toward the program was good and the coverage was also quite good. However, it can be said that drug therapy alone is only a short term measure for reducing worm infection in a target population. Re-infection is frequent within a short period. Therefore problem of drinking water, prevention of open defecation, behavioral factors such as hand washing practice, feeding habit should also not be ignored. Further control measures in schools and communities through improved sanitation and hygiene along with de-worming need to be ensured to prevent infection and re- infection.

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# CHAPTER 1

## INTRODUCTION

### Background

Malnutrition continues to be a major public health problem throughout the developing countries. It increases one's susceptibility and severity of infections, and is thus a major risk factor for illness and death, particularly of millions of pregnant women and young children. Whereas the high prevalence of bacterial and parasitic diseases in developing countries contributes greatly to malnutrition. Among which one of the important cause is worm infestation. <sup>1</sup>

Worm infestation is a major public health problem in children of developing countries because of poor socioeconomic conditions and lack of good hygienic living. Intestinal worm infestations in humans is a silent epidemic that destroys the health, well being and learning potential of millions of children in many developing countries today. <sup>2</sup>

Recent estimates of World Health Organization (WHO) suggest that associated morbidity with *Ascaris lumbricoides* infects over one billion people, *Trichuris trichiura* 795 million, and hookworms (*Ancylostoma duodenale* and *Necator americanus*) 740 million people. The greatest numbers of soil-transmitted helminthes infections occur in sub-Saharan Africa, the Americas, China and East Asia. <sup>3</sup>

Various Global Deworming Programs are being launched throughout the world to address the problem of worm infestation. Among them Deworm the World (DtW) is one which was launched in 2007 as an initiative of the Young Global Leaders Economic Forum in Davos, Switzerland. This organization is committed to the promotion and sustainable implementation of deworming through advocacy, program coordination and in-depth technical assistance. Deworm the World is working worldwide to implement school-based deworming wherever it is needed. DtW has coordinated the donation of

deworming tablets in 26 countries around the world in 2009. Mass deworming programs based in schools are recommended by the World Health Organization (WHO) which cost just some pennies per child. Studies have proved that deworming is the most cost-effective way of increasing education.<sup>4</sup>

According to the "Guidelines for distribution of deworming drugs for school aged children-2066/067, Nepal," the prevalence of worm infestation among school aged children in Nepal is upto 75%. Especially, young children in Nepal have a very high infestation rate and suffer with a heavy worm burden.<sup>5</sup> Worm infestation in children leads to decreased resistance to infection, malnutrition, anemia and also impairs cognitive function. Various studies done at different district of Nepal by different organizations showed that the prevalence of worm infestation among school children ranges from 48% - 78%.<sup>6</sup>

Helminthiasis is infestation with one or more intestinal parasitic worms like roundworms (*Ascaris lumbricoides*), whipworms (*Trichuris trichiura*), or hookworms (*Ancylostoma duodenale*). Soil-transmitted helminths commonly known as intestinal worms are the most common infestation worldwide affecting the most deprived communities. The causal agent of soil-transmitted helminthiasis is any of the following worms: *Ascaris lumbricoides*, *trichuris trichiura* and the hookworms. Infection is caused by ingestion of eggs from contaminated soil (*A. lumbricoides* and *T. trichiura*) or by active penetration of the skin by larvae in the soil (hookworms). Soil-transmitted helminths produce a wide range of symptoms including intestinal manifestations (diarrhoea, abdominal pain), general malaise and weakness that may affect working and learning capacities and impair physical growth. Hookworms cause chronic intestinal blood loss that result in anaemia. Soil-transmitted helminth infections are widely distributed in tropical and subtropical areas and, since they are linked to a lack of sanitation, occur wherever there is poverty. People infected with soil-transmitted helminths have parasite eggs in their faeces. In areas where there are no latrine systems, the soil (and water) around the village or community becomes contaminated with faeces containing worm eggs.<sup>3</sup>

Helminthes not only lodge at different parts of the body but also destroy the tissues and organs in which they live and cause abdominal pain, diarrhea, intestinal obstruction, anemia, ulcers and various health problems. All of these consequences of infection can lead to an impairment of learning and slower cognitive development leading to poor school performance.<sup>2</sup> These parasitic infections manifest themselves as reduced growth rates through impaired nutrient utilization leading to malnutrition. Consequently, the children are not able to achieve their full potential in physical performance and education.<sup>7,8</sup>

It is important to note that the stunting of children's growth due to worm infections is not readily recognized because it occurs almost imperceptibly over time. Thus, the full impact of helminthes infestations is often greatly under-reported or overlooked.<sup>2</sup>

*According to Annual report 2065/66 on National Nutrition Program:* malnutrition remains a serious obstacle to child survival, growth and development in Nepal. The most common forms of malnutrition are protein-energy malnutrition (PEM) and micro nutrient deficiency. One of the major reasons behind iron deficiency anemia is worm infestation in context of Nepal. The National Nutrition Program under Department of Health Services has laid the vision as “all Nepali people living with adequate nutrition, food safety and food security for adequate physical, mental and social growth and development and survival” with the mission to improve the overall nutritional status of children, women of child bearing age, pregnant women, and all ages through the control of general malnutrition and the prevention and control of micronutrient deficiency disorders.

*Given Components of National Nutrition Program:*

1. Control of Protein Energy Malnutrition
2. Control of Iodine Deficiency Disorders
3. Control of Vitamin A Deficiency Disorders
4. Control of Anaemia

5. Low Birth Weight
6. Protection and Promotion of Breastfeeding
7. To reduce the Infestation of intestinal worm among Children and Pregnant Women to less than 10% by 2017

### **Responses of Nepal Government toward Worm Infestation as stated in Annual Report**

- Continued regular biannual de-worming of children aged 1-5 years along with vitamin A capsule distribution;
- Continued de-worming of pregnant women as per the Policy and protocol;
- Scale up on strengthening the school de-worming Program to other Development regions

### **School Deworming Program**

School deworming Program is a major part of School Health and Nutrition program. School aged children, especially of government schools are one of the most vulnerable groups to suffer from PEM and micronutrient deficiency problems. To address those issues, a 'National School Health and Nutrition Strategy' has also been jointly approved by Ministry of Health and Population and Ministry of Education with the objective to improve health and overall nutritional status of school children through the implementation of School Health and Nutrition Program.<sup>9</sup>

Government of Nepal, Ministry of Education and Ministry of Health and Population launched school deworming program since fiscal year 2063/64 in government schools of Far Western and Mid Western Development Region (24 districts) with the main objectives :

- To reduce the morbidity rate in children due to worm infestations.
- To inform children regarding worm infestation and tell them about worm infestation control program.
- To encourage to adapt preventive measures against worm infestation.



- To provide medicines to children and prevent from worm infestations.

Target population for this program is all the students of class 1 to 5 of government schools only. (No Provision of medicines for others except target population so the program should be conducted as per rules otherwise will be self responsible.)

**Activities to be conducted:** As mentioned in the guideline of School Deworming Program, every student and their parents need to be pre-informed by the school before conducting the program and should have the consent with the parents for giving the medicine. There is provision that school teachers should have medicine first in front of the students and then the students will follow accordingly in front of the teachers.

In fiscal Year 2065/66 School Deworming Program was expanded to 19 other mountain districts. Now, this program is implementing in all together 43 districts.

### **Rationale:**

School deworming program was started in fiscal year 2063/64 by the Government of Nepal. After the implementation of the program, it is very essential to find out the status of the program, including coverage, acceptance and effectiveness. The program was implemented since last three years but till date not any assessment was carried out. To know the status of the program, so it is felt need to assess the program. This on one hand will provide the information on coverage of the program and in other hand will provide evidence based information to scale up the program in other regions of the country. It also aims to provide policy makers and health sector personnel with greater understanding of current situation of school deworming program. This can help them in formulating plans for achieving optimal coverage as well as more acceptability and effectiveness of the program which will ultimately help to improve health status of school children.

## **CHAPTER 2**

### **OBJECTIVES**

#### **General Objective:**

- To assess the school deworming program in Surkhet and Kailali district of mid-western and far western development region of Nepal.

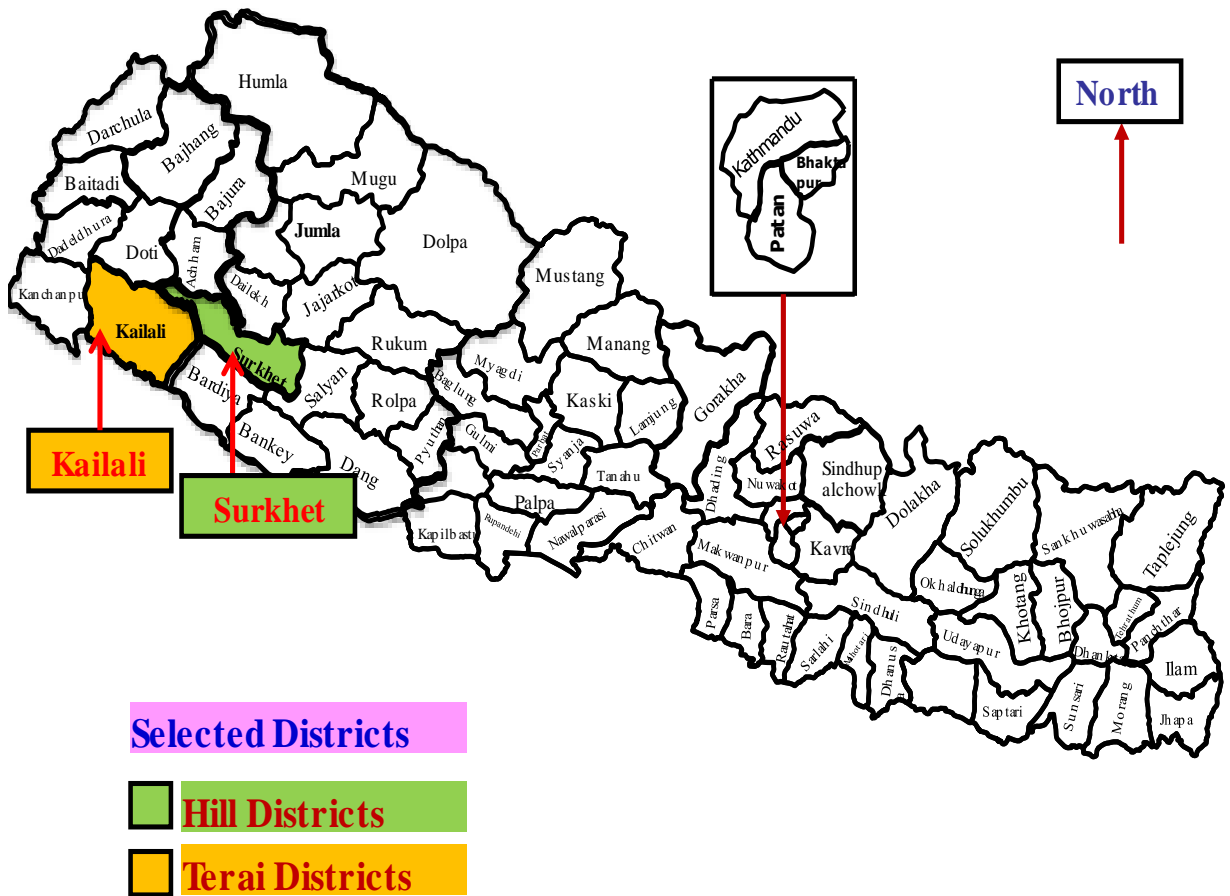
#### **Specific Objectives:**

- To find out the coverage of school deworming program.
- To assess the perception of school teacher and parents towards the school deworming program.
- To find out the acceptability and perceived effectiveness of the school deworming program.

# CHAPTER 3

## METHODOLOGY

This study was conducted to assess a component of National Nutrition Program. The study duration was of 7 months including proposal development, data collection, analysis, and report preparation. The study period began in March 2010 and ended in September 2010. The assessment was done in Surkhet and Kailali Districts.



**Surkhet District** lies in the Mid Western Development Region of Nepal and spans over 2415 square km. of area. Surkhet district is bounded by Salyan district in the east, Doti and Achham in the west, Dailekh and Jajarkot in the north and Kailali, Banke,

and Bardiya in the south. It extends from 28<sup>0</sup>20' to 28<sup>0</sup>58' north latitude to 80<sup>0</sup>59' to 82<sup>0</sup>2' east longitude.<sup>11</sup> The district comprises of fifty Village Development Committees and one municipality. Birendranagar Municipality is Regional as well as the district headquarter of Mid Western Development Region and surkhet district respectively.<sup>10</sup>

Geographically, 84% of the area is covered by hills, and the valley plain covers 16% area. The altitude ranges from 192 meters to 2800 meters.<sup>12</sup> The district has very diverse topography. Sub tropical climate is found in lower altitude where as warm temperate climate prevails in high altitude areas. Most of the settlements are confined to valley plains and lower foot hills.<sup>12</sup>

The total population of the district according to 2001 census is 288,691 which comprise of 142,886 males populations and 145,805 females. Chhetri is the dominating ethnic group followed by Magar and Kaami and Nepali is the dominating language. Around 99% peoples are Hindus. Subsistence agriculture is the major occupation of most of the people. Literacy rate in Surkhet district is 70.2% among which Male literacy 83.10 % and female literacy 57.3%.<sup>10</sup>

**Kailali district** is situated in Far western development of Nepal with its total area of 3235 square km. It is surrounded by Karnali River, Bardiya and Surkhet district in the east, Kanchanpur and Dadeldhura in the west, Doti, Dadeldhura and Surkhet districts in the north and Uttar Pradesh in the south. It extends from 28<sup>0</sup>22' to 28<sup>0</sup>58' north latitude to 80<sup>0</sup>30' to 81<sup>0</sup>18' east longitude.<sup>10, 11</sup>

The district comprises of fourty two Village Development Committees and two municipalities which is Dhangadi and Tikapur. Dhangadi Municipality is district headquarter of Kailali District.

The total population of the district according to 2001 census is 616,697 which comprise of 312,311 males populations and 304386 females. Tharu is the dominating ethnic group followed by Chhetri. Tharu is the dominating language in this district. Around 99% peoples are Hindus. Subsistence agriculture is the major occupation of most of the people.

Literacy rate in Kailali district is 50.06% among which male literacy 63.21 % and female literacy 40.41%. Life expectancy of people in this district is 53 years.<sup>10</sup>

The students and parents of the students studying in class 1-5 in the government schools as well as school teacher of (those schools of) Surkhet and Kailali Districts were considered for this study.

According to 2066 B.S. data of Department of Education (DOE), Sanothimi, Bhaktapur, there were 448 government schools in Surkhet and 405 government schools in Kailali. All the government schools (having program for 1-5 class) were listed according to data provided by DOE and 10% of those schools were selected randomly with computer generated random number for each district. The total sampling schools for our study was 45 and 41 government schools of Surkhet and Kailali districts respectively. But, three schools were excluded from the study, two at Kailali due to internal conflict and community school and one at Surkhet as the program was not run by the school. So the program was not conducted in two schools and information could not obtain from one school. Hence, all together 83 schools, 44 from Surkhet and 39 from Kailali districts were included in our study.

The study covered 16 VDCs and 1 Municipality from Surkhet and 13 VDCs and 2 Municipality from kailali district covering two ecological regions i.e. hill and terai as well as two development regions MWDR and FWDR, respectively.

One school teacher was taken from each school for interview. Therefore all together 83 school teachers were included in the study. Similarly, 5-10 parents [depending upon number of students in schools (1 parent per 50 students)] were taken randomly from each school. For that, first of all total students from class 1-5 classes were taken. If the number was less than or equal to 250 then we selected 5 students randomly (one from each class) with the help of each class register. Then we visited the parents of selected students. So, in total there were 493 parents included in the study in which 234 were from Surkhet and 259 were from kailali district.

The data collection tools for the interview were comprised of pre-designed semi-structured questionnaire as per the objective of the study. The questionnaire was prepared based on literature review, the researcher's experience and knowledge, and experts' suggestions. The questionnaire was used after modification and approval by all the concerned experts. Two sets of questionnaire and two sets of key informant guidelines were used for parents, school teacher DPHO and DEO respectively. For coverage of the program a format was developed including sex, class, and ethnicity.

The two sets of semi-structured questionnaire were administered to parents and school teachers respectively and separately to collect the required primary information. One of the parents was interviewed as a primary respondent to collect information on school deworming program. In case of absence of both of them, an adult in the household was interviewed. Similarly, school teacher was interviewed as a focal person of the school deworming program. In case of his/her absence, the principal of the school was taken as an alternate respondent. In case of absence of both of them other teacher who had knowledge about the program was interviewed.

The record on school deworming program was reviewed to collect the data on coverage of deworming drug from school/health institution record as a secondary data. For that, we reviewed the records of the program.

In Kailali the data were recorded and maintained in schools and segregated by ethnicity, gender and grade in the register provided by Backward Society Education (BaSE) office. But, in Surkhet, the primary data were recorded and maintained by health institutions and segregated by sex and grade only.

The collected data were edited, coded and categorized, and then master chart was prepared on the electronic data sheet in Microsoft Excel 2007. Data of the master chart were then converted into SPSS 11.5 version for analysis. Microsoft Word 2007 was used for tabulation and graphical representation of the data. For descriptive analysis, frequency and percentage were calculated.

The information obtained from the Key Informants {D(P)HO and DEO } were note down in a note book and then summarized after completion of the interview.

The questionnaire was prepared after discussion with the experts. Logical sequence of questionnaire was maintained. The prepared questionnaire was translated into Nepali language for convenience and accuracy for data collection, as well as for the respondents to understand easily. Then the answers were again retranslated into English language for data entry and analysis. Data collected were cross checked for completeness, errors and inconsistencies, prior to the entry into the spreadsheet. After entering the data in Microsoft Excel, the validity of data was again checked for any missing of data and errors in data entry.

Ethical approval was taken from the ethical review board of Nepal Health Research Council. Similarly informed consent was taken from the concerned DPHO and DEO of Surkhet and Kailali district. Informed consent was also taken from the respondents verbally before the data collection, after clearly explaining of the purpose and plan of the study in Nepali language. Confidentiality was maintained throughout the study.

### **Operational Definitions**

**Coverage:** Percentage of students consuming deworming drugs out of total student every class from 1 to 5.

**Acceptance:** Preference and readiness to consume the drug

**Effectiveness:** Benefits and impacts after consuming the deworming drug among Students

**Perception:** Opinion of school teacher parents and health worker towards school deworming program.

**School Deworming program:** Distribution of deworming drugs to Students of Primary classes of Government schools.

**Primary School:** Class 1 to 5 of Government school.

**Age of Respondents:** Age at the time of interview.

**Sex of Respondents:** Male and Female

**Caste / Ethnicity:** People of all ethnic groups according to national classification.

**Type of Family:** Type of the family was asked to the respondents and was categorized as the nuclear and joint/extended family.

**Religion:** Religion was asked to the respondents and was grouped as Hindus, Buddhist, Muslim, Christian and others.

**Average monthly income:** It was the combined monthly income of all of the family members.

**Educational qualification:**

Illiterate: Unable to read and write

Literate: Able to read or write or both but have not had any formal education

Primary: 1-5 Class

Lower secondary: 6-8 Class

Secondary: 9-10 Class

SLC and above: SLC and higher education above S.L.C.

**Occupation:** It denotes work in which respondent spends maximum of his/her time and This is a main source of income.

**Source of information about the program:** Point from where respondents knew about the school deworming program i.e. teacher, Health workers, parents, NGO, Radio/ TV

**Health workers:** People who are working in peripheral health institution.

**Teacher:** Teachers of the selected Government Schools.



**Parents:** Parents of the students studying in primary classes.

**Provision of Toilets in school:** Availability of toilets for teachers and students at school.

**Provision of drinking water:** Availability of drinking water at school.

**Open Defecation:** Defecation around the school surrounding instead of using toilets.

**Hand Washing Facility:** Availability of hand washing facility along with soap, ash and adequate water at school after using toilets.

## CHAPTER 4

### FINDINGS

#### Section 1 Coverage of the program

##### 4.1 Coverage of school deworming program

The table shows the coverage of school deworming program. Overall coverage of the deworming program was 92%. Coverage is highest in class three which is 95%. There is no much variation in coverage among male and female in class one and overall coverage of the class is 90% which is also the lowest coverage among the classes. The coverage is 3% higher among female in class 2 but in class 4, coverage is 3% higher among male. (Table 1)

**Table 1 Coverage of school deworming program**

Coverage	class 1			class 2			class 3			class 4			class 5			class 1-5		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Total no of students in class	2282	2583	<b>4865</b>	1838	1924	<b>3762</b>	1795	2152	<b>3947</b>	2010	2317	<b>4327</b>	1958	2249	<b>4207</b>	9827	11180	<b>21007</b>
Total no of students taking Albendazole tablet	2059	2337	<b>4396</b>	1658	1793	<b>3451</b>	1706	2044	<b>3750</b>	1891	2106	<b>3997</b>	1801	2042	<b>3843</b>	9090	10215	<b>19305</b>
Percentage	90.22	90.47	<b>90.35</b>	90.20	93.19	<b>91.73</b>	95.00	95.00	<b>95.00</b>	94.00	91.00	<b>92.5</b>	92.00	91.00	<b>91.50</b>	92.50	91.36	<b>92.00</b>

## 4.2. Coverage of school deworming program in Surkhet District

Overall coverage of Surkhet District for school deworming program was 91%. Coverage was highest in class three and lowest among students of class four. About four percent of variation was seen among male and female in class two, three and four but overall coverage among male and female was almost equal. (Table 2)

**Table 2 Coverage of the program in Surkhet District**

Coverage	class 1			class 2			class 3			class 4			class 5			class 1-5		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Total no of students in class	1017	1057	<b>2074</b>	822	808	<b>1630</b>	796	836	<b>1632</b>	826	1014	<b>1840</b>	813	888	<b>1701</b>	4274	4603	<b>8877</b>
Total no of students taking Albendazole tablet	901	965	<b>1866</b>	740	764	<b>1504</b>	786	785	<b>1571</b>	724	852	<b>1576</b>	743	829	<b>1572</b>	3894	4195	<b>8089</b>
Percentage	88.59	91.26	<b>90.00</b>	90.00	94.55	<b>92.00</b>	98.74	94.00	<b>96.26</b>	87.63	84.00	<b>85.65</b>	91.38	93.35	<b>92.41</b>	91.10	91.13	<b>91.12</b>

### 4.3 Coverage of school deworming programme in Kailali District

The table given below shows the coverage of school deworming program in Kailai District. Overall coverage was about 93% which is higher in compare to Surkhet district. Coverage was seen highest in class four and lowest in class one in comparison of all five classes. There was no much variation in coverage among male and female students. (Table 3)

**Table 3 Coverage of program in Kailali District**

Coverage	class 1			class 2			class 3			class 4			class 5			class 1-5		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Total no of students in class	1265	1526	<b>2823</b>	1016	1116	<b>2147</b>	999	1316	<b>2323</b>	1184	1303	<b>2491</b>	1145	1361	<b>2506</b>	5609	6622	<b>12231</b>
Total no of students taking Albendazole tablet	1158	1372	<b>2529</b>	918	1029	<b>1958</b>	920	1259	<b>2180</b>	1167	1254	<b>2426</b>	1058	1213	<b>2272</b>	5221	6127	<b>11348</b>
Percentage	91.54	89.90	<b>89.58</b>	90.35	92.20	<b>91.19</b>	92.00	95.66	<b>93.84</b>	98.56	96.23	<b>97.39</b>	92.40	89.12	<b>90.66</b>	93.00	92.52	<b>92.78</b>

## **Section 2: Perception of school teacher towards the program**

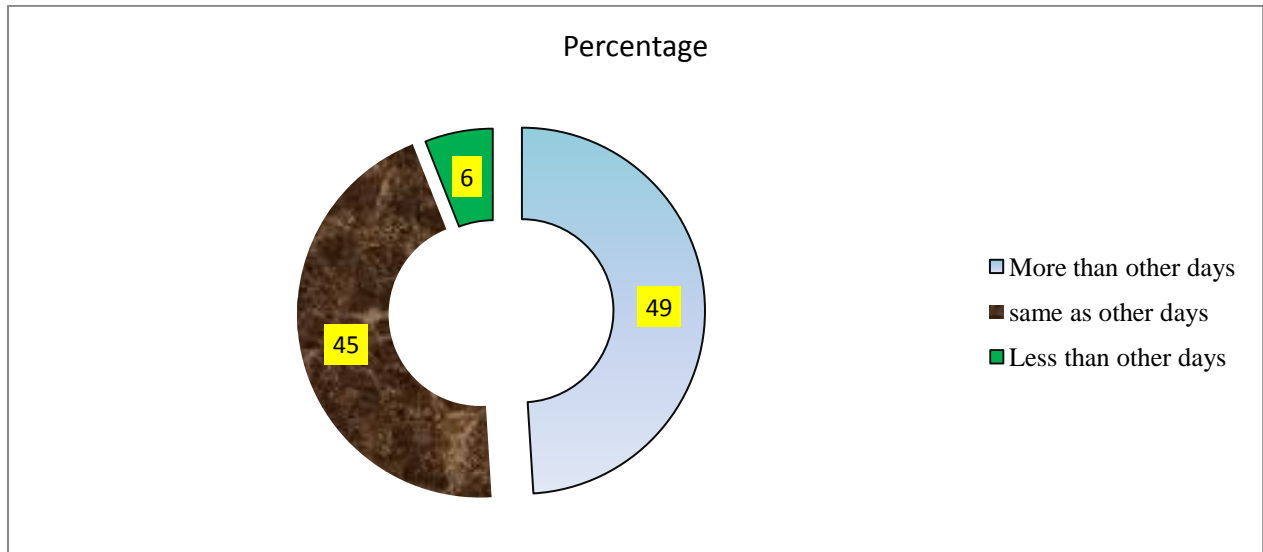
### **4.2 Background characteristics of school teacher**

Out of total 83 school teachers, nearly three fourth of the respondents were male i.e. 73.5% and remaining were female i.e. 26.5%. Nearly two third (62.6%) of the respondent were from age group 31-45 years followed by age group  $\leq 30$  (24.1%) and age group  $>45$  (13.3%). Regarding educational qualification of the respondents it was found that, 39.8% of respondents were intermediate passed, same percent (39.8%) were SLC passed, 10.8% were graduate, 8.4% were post graduate and 1.2% were also found having educational qualification below SLC.

### **4.3 Sources of information about the Program**

It was revealed that, half of the teachers involved in school deworming program got information through health workers (50.6%), another (44.6%) through BaSE organization and few (4.8%) got through radio/TV and other teachers. Most of the teachers (91.6%) mentioned that before the conduction of school deworming program they used to meet for planning of the deworming day. Majority of teachers (91.6%) also mentioned that they deliver information regarding worm infestation to the students in class. Regarding information about the drug distribution day, it was found that majority of the teachers (94%) were informed about the program. Similarly most of the students (92.8%) and some parents (26.5%) were also informed about the drug distribution day.

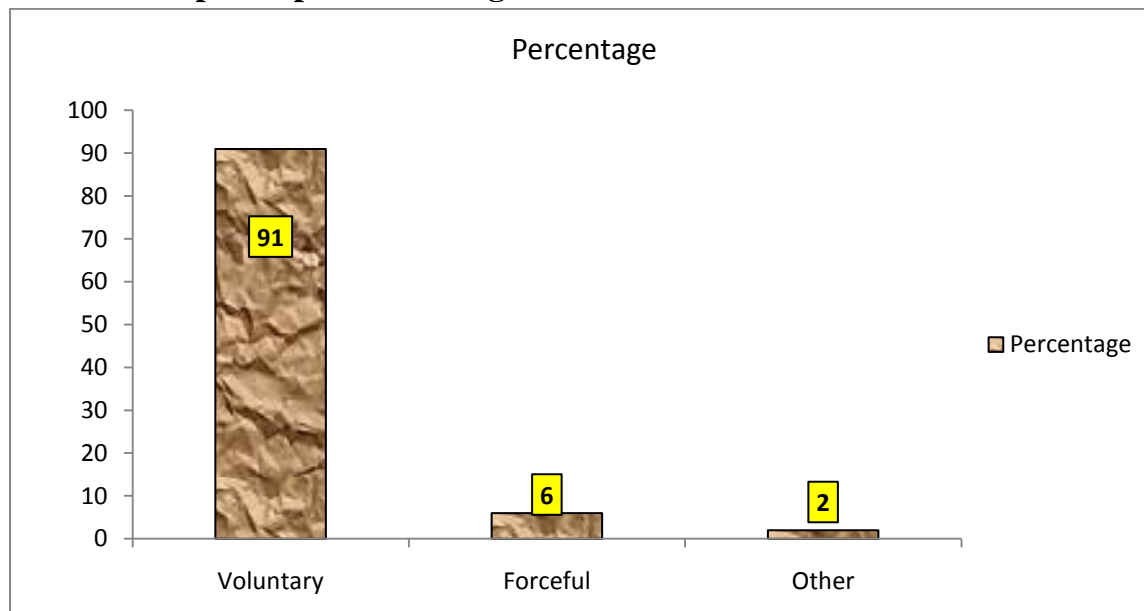
#### 4.4 Presence of students at the day of drug distribution



**Figure 1 Presence of students at the day of drug distribution (n= 83)**

About fifty percent of the teachers reported that presence of student on the day of drug distribution was higher than that of other days, 44.6% of the teachers replied that the presence of students were similar as of other usual days but 6% teachers told that student found to be in lesser number than on other days on the day of drug distribution. (Figure 1)

#### 4.5 Students participation in drug intake



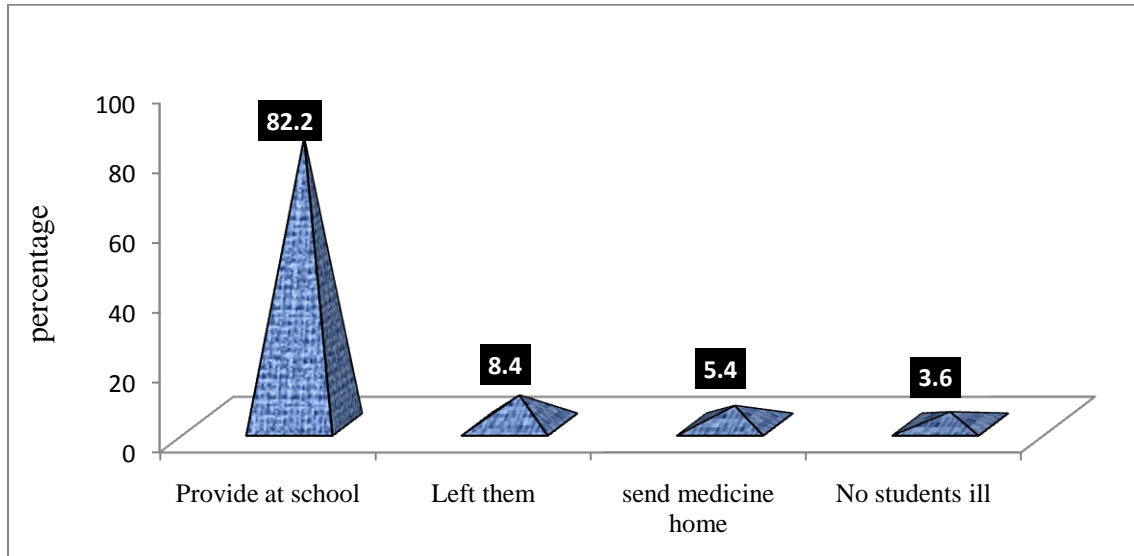
**Figure 2 Students participation in drug intake (n = 83)**

More than 91% teachers responded that students participated voluntarily, 6% teachers mentioned that they have to compel students to take drug, and 2.4% teachers had to counsel student to make them take drug. (Figure 2)

#### 4.6 Intake of drug in presence of teachers

According to national guideline of school deworming program, students should ingest drug in presence of their teachers. This study revealed that majority (97.6%) of teachers reported that students take the drug in their presence.

#### 4.7 Provision of drug for those students who got ill on the day of drug distribution



**Figure 3 Provision for the drug distribution to those got ill in the day of drug distribution**

Figure 3 shows the provision of drug to those students who were ill on the day of drug distribution. It shows that majority of the teachers (82.2%) explained that the drugs were provided at school after they get well and resume school. Few teachers (5.4%) perceived that they sometimes send drugs to their home through other students, and 8.4% teachers didn't do anything to absentees. Some other (3.6%) perceived that there were no any ill students during the drug distribution program.

#### 4.8 Response of other teacher and parents towards the program

According to 94% of interviewed teachers, response of other teachers at school toward the program was positive and also supportive for the conduction of deworming program, 3.6% replied that the other teachers' response was neither positive nor negative toward the program and 2.4% also told that other teachers' response toward the program was not positive. Similarly, about 62.7% teachers answered that the responses of the parents toward the conduction of school deworming program was positive, 14.4% told that the response of parents were neither positive nor negative and 13.2% of teachers told that they had no any idea regarding the view of parents towards the program because of lack of direct interaction with parents.



#### 4.9 Perceived reasons by teachers for program being beneficial

The table 4 shows the reasons perceived by teachers for the program being beneficial to children. Forty one percent of the teachers told that program was beneficial for improving health of the children, 36.1% responded that it helped in prevention of worm infestation, about 29% reported that it would be helpful to increase awareness among children on worm infestation, hygiene and sanitation, and 17% said it would increase attendance rate of students at school the reason behind this might be because of decreased frequency of illness among children after deworming.

**Table 4 Reasons perceived by teachers for program being beneficial (Multiple Responses)**

Study Variables	Frequency	Percent
<b>Yes</b>	<b>83</b>	<b>100.0</b>
Better for child health	34	41
Prevention of infestation	30	36.1
Increase awareness	24	28.9
Increase attendance rate	14	16.9
Decreased frequency of illness	12	14.4
Cure the infected child	4	4.8
Reduced abdominal pain	3	3.6
Improved learning	3	3.6
Others	8	9.6

#### 4.10 Reported side effects of deworming drug

The table shows the reported side effects after consuming deworming drug. Majority (79.5%) of the teachers told that they did not notice any side effects after consuming deworming drug in their students, whereas (12%) said they had noticed few side effects with their students such as nausea, vomiting, abdominal pain, fever etc. Remaining 8.4% of the teachers mentioned that they were unaware of any side effects.

#### 4.11 Changes perceived by teachers in nutritional status of children after deworming

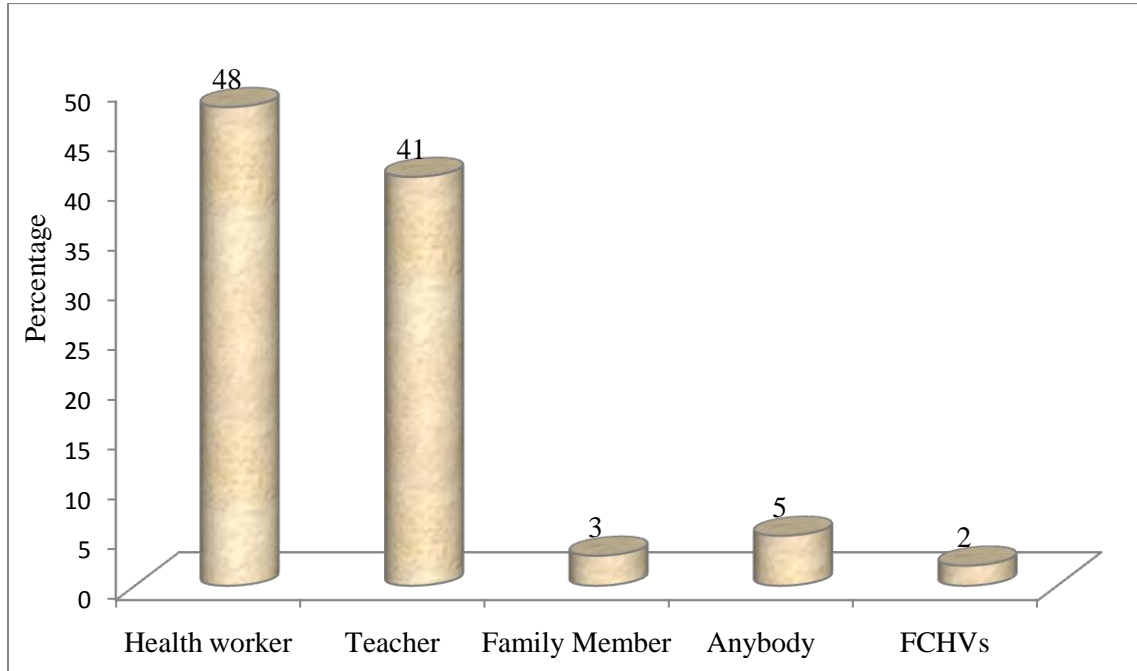
More than half (55.4%) of the teachers disclosed that they didn't have any idea regarding change in nutritional status of the children after having deworming tablets because it is difficult to notice

students status in group at school without using any measuring tools and record keeping, 36.1% told that they perceived changes in nutritional status and 8.4% revealed that they did not notice any changes. Regarding changes in nutritional status majority of the teachers (60%) mentioned that students were healthier than before, about 27% of the teacher said decreased incidence of abdominal pain among students, 20% told that appetite of children was improved, about 13% teachers noticed weight gain among students and 10% also reported increase in attendance rate of students at school after launching deworming program.

#### 4.12 Perceived positive impacts of the program perceived by teachers

Regarding the positive impacts of the program perceived by teachers, it was found that the health status of children was changed (66.3%), school attendance rate was increased (44.6%), school activities was increased (18.1%), illness rate was decreased along with decreased abdominal pain (10.8%) and awareness among people was increased on deworming and personal hygiene(7.2%).

#### 4.13 Teacher's recommended person for drug distribution



**Figure 4 Teachers perception on individual who can play better role for drug distribution (Multiple responses)**

Majority of the respondents (48%) answered that health worker would play a better role for distributing the drugs as they are directly related to the health and have more knowledge regarding health issues, more trustworthy and the classes would not be hampered, 41% perceived that teachers would play a better role as they are more familiar to the students and more responsible towards students, similarly 3.6% advised it would be more effective if provided through family members, whereas 2.1% suggested that FCHVs would play a better role in distributing the drugs as they are more familiar with the community. (Figure 4)

#### **4.14 Problems faced during program implementation**

Regarding problem faced during program implementation, majority of the respondents (73.50%) told that they didn't face any problems during program implementation whereas (26.50%) faced some problems. Among them, most of the respondent replied lack of provision of drugs on time from DPHO (63.60%), hampered classes (22.72%), students ignored to take the medicines at initial phase (13.63%) and also difficult to manage time to maintain the register for record keeping of medicines distributed (9.09%). (Table 5)

**Table 5 Problems faced during Program implementation. (Multiple response)**

<b>Study Variables</b>	<b>Frequency</b>	<b>Percent</b>
Lack of provision of medicine timely from DPHO	14	63.60
Hampered class	5	22.72
Many ignore to take medicine at initial phase	3	13.63
Difficult to manage time to maintain register	2	9.09
Other	5	22.72

*(Among 22 teachers who reported problem)*

#### **4.15 Suggestions given by teachers to cover children out of school in this program**

The table shows the ways to enroll child out of schools where we found that 53% of respondents told that FCHVs could be mobilized to include the children out of school, 29% told that community campaign could be launched, 18% told that awareness could be raised in community campaign. (Table 6)

**Table 6 Suggestions given by the teachers to cover children out of school in this program (Multiple Responses)**

Study Variables	Frequency	Percent
Mobilizing FCHVs	44	53.0
Launching a community campaign	24	29.0
Awareness raising Campaign in community	15	18.0
Increase admission rate	7	8.4
Include elder students and student who don't go to school by this program	6	7.2
Include through health institute along with other health program	5	6
Launching a preschool campaign	3	3.6
Inform about the day of drug distribution who don't go to school through School going children	2	2.4
Mobilization of local club	2	2.4

#### 4.16 Suggestions towards the program

The following table shows the suggestions given by the teachers towards the program where it was found that 48% of respondents wanted continuation of the program, 28% demanded the information oriented program to be conducted for school teachers on school deworming program, 18% gave emphasis on providing training to the teachers for the involvement in the drug distribution. Similarly various other suggestions were explored by the respondents.(Table 7)

**Table 7 Suggestions towards the program (Multiple responses, n=83)**

Study variable	Frequency	Percent
Program should be continued	40	48.2
Add information oriented program	23	27.7
Training to teachers	15	18
Elder children and teachers also should be provided drug	14	16.8
Timely supervision and monitoring from	14	16.8

higher level		
Program should be conducted regularly	8	9.6
Timely provision of medicine by health center	8	9.6
Programme should include all aged students	7	8.4
Health examination also should be done	6	7.2
Adequate amount of medicine should be provided	6	7.2
Provision of incentive to the focal teacher	5	6
Provision of first aid kit to school	5	6
Appoint focal teacher for the programme	4	4.8
Awareness raising programme in the school should be conducted	4	4.8
Parents should be involved	4	4.8
Conduct other health programme too	3	3.6
Other	8	9.6

## **Section C: Findings of parents**

### **4.17 Socio- demographic Characteristics**

Out of total four hundred and ninety three respondents, most of the respondents were in the age group of 31 to 40 years (44%) followed by the age group of 21 to 30 years (34.0%). More than two third of the respondents were female (69.6%). Most of the respondents were from disadvantaged janajati (40.4%) whereas one third of the respondents (33.1%) were from upper caste group. Regarding the educational status, 32% respondents were illiterate, 36% were just can read and write, 16% were primary level, 7.5% were lower secondary level, 4% were secondary level, and remaining 4% have educational qualification of SLC and above. Regarding the occupational status of the respondents 41% were housewives followed by farmer (36%), labor (8%), and engaged in business (7%). More than two third of the family's earn less than 5000 per month (69.8%). Nearly two third (70%) of the respondents were from Nuclear family and 27.4% and 6.7% were from joint and extended family respectively. Majority of the respondent (99%) were Hindu. Nearly three fourth of the respondents (74.6%) had more than two children. Most of the respondents (65%) were mother of school going children followed by father (26%).

### **4.18 Parent's knowledge on causes of worm-infestation**

The table shows the parent's knowledge on causes of worm infestation in which it was found that 41.4% of the respondents quoted drinking dirty water as a cause, 31% said lack of hand washing before having food. Similarly, few respondents said the causes like lack of personal hygiene, eating stale foods whereas some respondents didn't have any idea about the causes of worm infestations.

**Table 8 Parent's Knowledge on causes of worm infestation (Multiple Responses)**

<b>Study Variable</b>	<b>Frequency</b>	<b>Percentage</b>
Drinking dirty water	204	41.4
Feeding without washing hands	153	31.0
Eating raw foods and vegetables	133	25.10
Washing hands with dirty water	67	13.6
Lack of personal hygiene	67	9.45
Unhygienic food	66	13.4
Eating stale food	59	12.0
Eating fruits and vegetables without washing	47	9.5
Eating sweet	40	8.1
consuming meat	8	1.6
Don't know	34	6.9
Others	7	1.4

**4.19 Parent's perceived sign and symptoms of worm infestation**

Interview with parents revealed that the sign and symptoms of the worm infestations were abdominal pain (82.9%) and other major sign and symptoms cited were nausea and vomiting, loss of appetite, abdominal distension, diarrhea whereas 1.4 % people told that they have no idea regarding the sign and symptoms of worm infestation. (Table 9)

**Table 9 Parent's perceived sign and symptoms of worm infestation (Multiple Responses)**

<b>Study Variable</b>	<b>Frequency</b>	<b>Percentage</b>
Abdominal pain	409	82.9
Nausea and vomiting	294	59.6
Loss of appetite	213	43.2
Abdominal distention	161	32.7
Diarrhea	136	27.6
Worm in stool	30	6.1
Urge to keep spitting	30	6.1
Sleep in a cold floor	20	4.0

Thirst	18	3.7
Fever	18	3.6
Anal itching	10	2.0
Dizziness	8	1.6
Headache	7	1.4
Sour belching	3	0.6
Don't Know	7	1.4
Others	61	12.3

#### 4.20 Parent's perceived effects of worm infestation

The table gives a breakdown of the different types of effects resulted from worm infestation. Where it was found that about 63% of people reported the physical growth retardation as an effect, 16% and 12%, as anemia and weakness, whereas 4% also reported it might leads to death but 11% of people were found having no knowledge on effects of worm infestations. (Table 10)

**Table 10 Parent's perceived effects of worm infestation (Multiple Responses)**

Study Variable	Frequency	Percentage
Physical growth retardation	310	62.8
Anemia	81	16.4
Weakness	58	11.8
Decreased immunity	35	7.1
Leads to death	20	4.1
Illness	19	3.9
Mental growth retardation	17	3.4
Don't Know	54	10.9
Other	45	9.12

#### 4.21 Parent's Knowledge on preventive measures of worm infestation

The table demonstrates the preventive measures of worm infestations where it was found that about 30% of the respondents told to have hygienic foods and avoid stale food, nearly one fourth of the respondents (24.5%) told to wash hands properly before having foods and few (3.65%)



told some other measures to prevent the worm infestations whereas 9.53% didn't tell anything since they had no any idea. (Table 11)

**Table 11 Parent's knowledge on preventive measures of worm infestation (Multiple Responses)**

<b>Study Variable</b>	<b>Frequency</b>	<b>Percentage</b>
Having hygienic food and avoid stale food	149	30.22
Washing hands properly before meals	121	24.5
Washing hands with soap and water properly after defecation	98	19.9
Cleanliness	97	19.7
Avoiding raw foods	81	16.42
Washing fruits and green vegetables properly before eating	78	15.8
Drinking clean water	73	14.8
Taking anti worm drugs	51	10.3
Avoiding open defecation	46	9.3
Not walking barefooted	29	5.9
Avoid sweets	7	1.4
Don't Know	47	9.53
Others	18	3.65

#### **4.22 Parent's perceived need of treatment for worm infestation**

The table demonstrates that majority of respondents (98.6%) have knowledge that worm infestation must be treated. Few respondents have no knowledge that either it should be treated or not. The major reasons given by parents towards need of treatment for worm infestation are to cure worm infestation (37.65%), to keep child healthy (30.24%), to prevent death from worm infestation (15.02%), to prevent other disease (11.31%) and to prevent worm infestation (10.08%).

#### **4.23 Source of information about school deworming program**

Majority of the parents (87.6%) have heard about school deworming program and 12.4% didn't have any idea about school deworming program. Among 87.6 % of respondents who have heard about School Deworming Program, 80% knew about it through their own children, 8.56% people knew about it through Radio and Television. Almost 90% of parents had idea that their children had received albendazole at school but 9% of parents are unaware either their child had albendazole or not at school.

#### **4.24 Parent's response towards School Deworming Program**

Majority (97.8%) of the respondents had good response toward the school deworming program. But 1.6 % respondents don't know either it is good or bad. Among respondents with good response towards the program, about 34% parents felt that it is beneficial to child health, about 31% thought it prevents from worm infestation, about 30% of the parents said that the program is free of cost.

#### **4.25 Parent's recommended person for drug distribution**

Out of 493 Parents, 253 (51%) were found preferring teacher which is much higher than any other for distributing the drugs in school deworming program. About 41% parents preferred health workers where as 3.65% preferred family member and 0.6% preferred FCHVs for drug distribution.

Reasons behind teacher's role are better for drug distributions are students obey the teachers, as they are more knowledgeable group of people, and considered as second parent. Among the respondents who said role of health worker is better for drug distribution, the reasons for selecting them are they are more knowledgeable in health issue and they also carry health checkups.

#### 4.26 Parent's view regarding continuation of the program

About 99% of parents want continuation of the school deworming program in future as well. More than 25% of respondents' expressed that school deworming program should be continued to prevent child from worm infestation, 5.3% said its free program so it should be continued and 2% said it should be continued to eliminate worm infestation.

#### 4.27 Noticeable change in child's health after intake of drug

More than half (50.7%) of the respondents noticed change at their child's health after consuming deworming drug. Nearly one third (29.5%) of the parents are unaware of change in child's health after intake of drug and few (19.9%) hadn't notice any change in child's health. The most common changes they noticed after deworming were decreased abdomen pain (77.6%), followed by increase in appetite (52.8%), healthier than before (15.6%), decreased abdominal distension (12.8%), fall ill less frequently (10.4%) respectively. (Table 12)

**Table 12 Noticeable change in child's health after intake of drug (Multiple Responses)**

Study variable	Frequency	Percent
<b>Yes</b>	<b>250</b>	<b>50.7</b>
Decreased abdomen Pain	194	77.6
Increased appetite	132	52.8
Healthier than before	39	15.6
Decreased abdominal distension	32	12.8
Ill less frequently	26	10.4
Stopped vomiting	18	7.2
Increase interest in study	14	5.6
Cleverer than before	14	5.6
Other	29	11.6

*(N=250, parents who noticed change in child's health after drug consumption)*

#### **4.28 Worms in child's stool after receiving medicine**

About 17% Parents noticed worm at stool of their children after receiving medicine and 37% were unaware if their children passed worm or not after having medicine.

#### **4.29 Willingness to pay for drugs**

About 93% of respondents are willing to pay for the drug in future if they have to pay for it but 7% said that they are not willing to pay for drug for their children at school and they will provide drug only when necessary. They reported to do so due to financial problem.

#### **4.30 Parent's suggestions for the improvement of program**

Regarding suggestion toward the program, 60% suggested for continuation of the program, 14.6% suggested program is good but 8.7% suggested it should be made more effective, 6.8% suggested for providing medicine to whole community of all age group and 1% also suggested for launching other nutritional program parallel.

## **Section D: Findings of key informant interview**

Key informant interview was done in each of the selected District Public Health Office and District Education Office to get information regarding program implementation modality, supervision and monitoring, recording and reporting status of the program. Strength, weakness and suggestion towards the program were also collected.

### **Findings of KII of DHO/DPHO**

The primary-school-based deworming program in Kailai had been in existence since FY 2063/64 and since FY 2065/2066 in Surkhet district. At Kailali since the day of initiation the program was being implemented through a local NGO called Backward Society Education (BaSE) in coordination with District Public Health Office (DPHO) Kailai but in Surkhet district it was implemented directly through the PHC/HP/SHP in guidance of DHO, according to the program modality of the government.

Regarding management of drug, it was supplied from central level to regional store and from there to district store of DHO/DPHO then after DHO supplied drugs to peripheral level health institutes. For the functioning of the program, a teacher had been selected from each school (by the school administration itself) as a focal-person who was then entitled to undertake all the responsibilities of the program in Kailali whereas there was no any focal person appointed for the program in schools of Surkhet. No any focal persons were appointed at peripheral health institutions in both districts. At DHO/DPHO in both districts the focal person for nutrition section was working as the focal person for school deworming program too. As mentioned earlier the whole program is being implemented by one of the NGO named BaSE in Kailai district but there was no any kind of support through any local NGO in Surkhet district for this program.

This program had covered the entire government schools of Surkhet and Kailai districts, running from class 1 to 5. In Kailali, BaSE was found to be regularly coordinating with DEO/DPHO/NRCS and other concerned government and non-government organizations. In this reporting period, BaSE was found to have supported DPHO physically and financially for the conduction of health-related programs. Formal coordination meetings were not planned under

this program. However, the organization was found to be regularly coordinating with DPHO on event basis School Health and Nutrition Committee was also formed in district level at Kailali. But no such specific committee was formed for this program in Surkhet district but there was also regular coordination between DEO/DPHO on event basis.

Supervision and monitoring status was very good in Kailai district from DPHO; according to District Public Health Officer "We conduct supervision twice a year and it is during time of drug distribution at School" but in contrast to that supervision and monitoring status was very poor in Surkhet district from all level. There was an integrated supervision and monitoring from regional and central level in both districts but no program specific supervision and monitoring was done. Supervision and monitoring was done by peripheral health institution to the schools at the drug distribution day.

As health personnel from the health post or sub health post acted as main person on the day of drug distribution, record in Surkhet was maintained by the in charge of health institution on same day but reporting to DHO was not done timely. "It could be made timely if provision of incentive is made because due to lack of incentive health worker don't show much concern to this program". And in case of Kailai register was maintained by appointed focal teacher after that they forwarded it to BaSE and BaSE reported it timely to DPHO.

According to District Health Officer of Surkhet "Response of teachers toward the program is quite good. They play a major role for drug distribution at school. As worm infestation is part of the curriculum of school they found this program supportive to teach students on that topic and also in personal hygiene. But due to lack of drug supply and incentive they do not show much interest toward this program. Students involve actively on the day of drug distribution and the attendance rates of student on that day increase than other day."

The impact of the program was quite good. They reported that prevalence of anemia had been decreased significantly; awareness of children towards health education has been increased. The scenario of worm infestation had been changed; nutritional status of the children had been improved. The number of people visiting for OPD visit for problem of worm infestation has been reduced.

Both KIs had common views regarding implementation of School deworming program only in mid and far development regions. Both said that these two regions were least developed regions and the problem of nutrition was higher in these regions. Most of the districts here were food stuff scarcity districts and other contributing factors were poor hygiene and sanitation status.

To include the children of school going age who are not going to school, they recommended that first of all cooperation of different sector is required to increase school enrollment rate by increasing awareness on it. And to include the remaining children, data of number of children at home should be collected by VDC with the help of FCHVs and drug should be supplied to them through FCHVs. but to make it possible adequate budget should be allocated.

The drug was generally administered to the children every 6 months. In Kailali it was scheduled to deworm students in the first week of Jestha and Mangsir but the schedule was subject to change according to the timely availability of drugs. And in Surkhet district the month decided by DHO for School deworming program was on the month of Baishak and Kartik but due to lack of supply of drug timely from higher level no specific schedule was followed.

The common problems and constrains of both districts were lack of timely drug supply from central level, inadequate quantity of drug supply, lack of budget for the program. Other problems reported of Surkhet district were:

- The transportation of drug was quiet hard at remote areas as there was no financial support for transportation from central level.
- Inability of providing training to teacher and heath worker due to the lack of financial support.
- Lack of motivation due to not having incentives to teachers and health workers.

**Impact of the program reported by D(P)HO :**

- It had played great role to reduce prevalence of worm infestation in school aged children
- Reduced malnutrition among children.
- Decreased prevalence of Anemia.
- Increased awareness on hygiene and sanitation.

**Weaknesses of the program reported by D(P)HO:**

- Lack of adequate budget for the program.
- Lack of adequate medicine.

Other additional weakness reported in Kailali was though the program was of government it was run by local NGO.

**Suggestions given by D(P)HO toward the program:**

Following suggestions were made to improve the status of the program further from:

1. Timely and adequate supply of medicine.
2. Provision of incentive to the health worker and school teacher
3. Orientations to the health workers and teachers should be conducted.
4. Medicine for the program should be supplied a month prior to date of distribution to DHO so that those medicines could be transported along with other drugs of National Vit A program as the budget for transportation of medicine of school deworming program is not allocated.
5. Worm infestation is not the problem only for children but for all age group so deworming should be done to whole community people for at least three consecutive years as far as possible so that the chance of reinfection to children would be reduced.
6. The period of school deworming program and national deworming should coincide so that program would be much effective.

**Findings of KII of DEO**

In Kailali, School Deworming Program was run by Backward Society Education (BASE) since 2059 B.S and after the Government had launched the School Deworming Program in Kailali district, BaSE continued that program under the District Public Health Office from FY 2063/64 B.S. On the other hand in Surkhet, school deworming program had previously been run by World Food Program (WFP) until it was phased out from Surkhet in 2064. It was then taken over by DPHO from the very next year i.e. 2065 B.S.



The procurement and supply of the drugs were done by D(P)HO and then supply it to peripheral level health institutions. In turn, the peripheral level health institutions supplied the drugs to the respective schools after assessing the amount of drugs required for the program in their area.

District Education Office (DEO) was involved in facilitation rather than direct involvement in the implementation of the program. Furthermore, in Kailali a District Coordination Committee was formed 7 months back which assigned 16 resource persons to supervise the implementation of the program in their respective VDCs. Their responsibilities included ensuring drug administration to each child in the designated schools, making sure of the drug adequacy before the drug distribution and immediate reporting to DPHO in case of drug shortage. Apart from that, the resource persons are supposed to be present during the drug distribution in their catchment area and try to observe in as many schools as possible of their catchment area on the day of drug distribution.

In Surkhet, 14 resource persons were found to be appointed by DEO in 14 different centers and they were delegated the task of coordinating with schools in the operation of the program. Furthermore, 6 schools inspectors had been given the responsibility of supervising the resource centers and they ensured the monitoring and supervision of each and every program including those of health.

In Kailali, coordination was in practice among the 3 parties involved in the program viz. DPHO, BaSE and DEO and regular meeting was conducted to smoothly run the program apart from the regular complementary efforts from one another in the various phases of the program whereas in Surkhet DPHO was solely in charge of the management of drugs and DEO was mainly responsible for the co-ordination of the program.

The process of supervision and monitoring was allocated to the Resource Persons of the respective areas and didn't involve the DEO authorities directly in both Surkhet and Kailali districts.

In Kailali, DEO was not found to be involved in keeping any record of the program and thus was not involved in the process of reporting either. The schools themselves kept record of the drug distribution in a register provided by BaSE. The data were supposed to be recorded in the gender

and ethnicity disaggregated manner as per the provided format before submitting them to BaSE. So, it could be said that though the schools were involved in the process of recording and reporting, DEO in itself was not found to have been a part of that process directly. On the other hand in Surkhet, the school on their part was not found to have maintained any record as such of the students who would receive the drugs as the practice was to handover the original copy of the same to health institution. Recording and reporting was found to be limited to health institutions demanding the number of students from school before dispatching drugs to schools and HI authorities taking away the original record of the students receiving the drugs from the school.

Both the District Education Officers mentioned that the coverage was good. Regarding involvement of NGOs/INGOs in the program it was found that in Surkhet District no NGOs/INGOs were involved whereas in Kailali an NGO known as "BaSE" has been found to be directly involved in the implementation of the program which is responsible for deployment of resource persons for the supervision and facilitation of drug distribution.

Positive impacts mentioned by DEOs were increased awareness among the parents as well as the students about the necessity and importance of receiving the drug.

### **Strengths and weaknesses (as perceived by DEO)**

#### **Strengths**

- As drugs are supplied through the channel of DPHO, adequacy of the drugs in proper place can be ensured.
- The allocation of responsibility to focal teachers has led to the realization of one's obligation among the teachers thus facilitating the proper implementation of the program.

#### **Weaknesses**

- The difference between the time of demand and procurement of drugs by the district authorities and the timing of drug distribution in schools sometimes even lead to the lack of drugs in schools during the time of distribution.
- The timely supply of drugs to the district from the centre is a constant problem.

### **Constraint of the program (as perceived by DEO)**

- The drugs were not provided to schools in sufficient amount. The main reason behind it was the discrepancy between the actual number of students admitted to the school and the number provided to local HI by the school from the old school record. The latter was used as the basis for the number of albendazole tablets to be supplied to the school and thus usually leading to insufficiency in drug amount.
- None of the teachers, resource persons and school inspectors was provided the orientation regarding the program.

### **Recommendations from DEO**

Following recommendations are made to improve the status of the program further from:

District Education Officer:

- The drugs need to be made available at the district level at any given time rather than placing a demand for the drugs from the centre every time before distribution.
- Incentives need to be made available to those involved in the work depending on the degree of burden involved.
- Orientation to resource persons plus school inspectors regarding the program.
- Appointment of a focal person for the program followed by thorough orientation for the program in each and every school to undertake the overall responsibility of the program.
- Estimation of the number of students to be provided with the drugs should be done on the basis of updated student number in the current educational session and incase the updated number is not available, the drugs should be sent a bit more in number than done for the last time in order to avoid any in adequacy.
- The monitoring and supervision of the program should be more regular and timely.
- The program should be made more regular in the fixed interval of 6 months.

- The local health institution staff, especially the MCHWs and VHWs should play a proactive role in conduction as well as the monitoring of the program.
- Provision should be made to include the out-of-school children under the program along with those from private and boarding schools.

## CHAPTER 5

### DISCUSSION

This survey revealed the coverage, communities and teacher's acceptance and perception towards the school-based deworming program. Coverage of the program was very high and both the groups recommended not to discontinue the program, but recommended strengthening and extending the program to other segments of the population; the health benefits were reported and only few side effects were reported.

Coverage of program was high and reason behind it might be because of provision of providing drugs to absentees' students in other days up to one week after they resume school. The coverage was higher in Kailali district by about two percentages. The reason behind this might be that in Kailali the program was assisted by a NGO (BaSE) even though it was a government program and also there was a provision of focal teacher with orientation but such type of provision was not found in surkhet.

A sizeable proportion of interviewed parents i.e. 91% were aware of worm infestation and their causes in our study whereas in study of "Community Perception of School-Based Deworming Program in Sanliurfa, Turkey" revealed that 53.5% of respondent did not know the causes of helminthes infections which shows better knowledge of causes in our study.<sup>2</sup>

The study indicated that 87.6% of parents have heard about school deworming program and most of them reacted positively and the finding was nearly similar to the study carried out in Turkey which indicated that 84.7% of parents were aware of the program. Most of the parents were found learning about the school deworming program via their children. This is consistent with the findings of our study.

Majority (83%) of parents in a study conducted in Turkey reported that the parents behaved positively and some even demanded more drugs for other family members but in our study it is even higher which i.e.98% showing good response toward the school deworming program.<sup>2</sup>

Both the parents and the teachers perceived as a benefit in the improvement of children's health and hence their well being in terms of decreased abdomen pain (39.3%), followed by increased appetite whereas the study of Turkey, found expulsion of worms as a major benefit (65.9%).<sup>2</sup>

Regarding the side effect of deworming drug it was found that 12% teachers told that they had noticed side effects which were nausea/vomiting, abdominal pain, fever and diarrhea. This finding was comparable with the findings of the study conducted in Sanliurfa, Turkey by Ulukanligil Mustafa. The study in Sanliurfa, Turkey identified about 7% parents reported that their children had suffered from side effects and the reported side effects were headache, abdominal pain and diarrhea. The difference in percentage about the side effect might be due to different respondent's category such that school teacher versus parents (difference in educational status of respondents).

Similarly, 99% of the parents and 98.4% of the teachers suggested teachers would be preferable person for drug distribution in the study conducted in Sanliurfa, Turkey by Ulukanligil Mustafa. But, 51% parents and 41% teacher said teacher's role is better for drug distribution in our study. The difference in the acceptance of the teacher role by parents as well as teacher might be due to the unaware of parents about the school deworming program and no orientation to all teachers about the program in our study area.

Nearly all (99%) of the teachers and parents showed willingness to continue school deworming program, but they also recommended strengthening and extending the program to other segments of the population in future study and report of Kenya, Vietnam and Turkey also had similar recommendation.

About 35% of those interviewed stated that they had seen worms in their children's stool after deworming and this was considered an important confirmation of the importance of the intervention in appreciation Of "School Deworming Program" by Parents in Ha Giang Province (Vietnam). The corresponding figure in our study was lesser i.e. only 17% Parents noticed worm in stool of their children after receiving deworming drug.<sup>14</sup>

More than 90% of parents in the project schools in both Ghana and Tanzania indicated a willingness to pay for continuation of drug treatment and which is quiet similar with our studies finding i.e. 93% of respondents are willing to pay.<sup>15</sup>

The positive impacts noticed by the respondents were improved health status (66.3%), increased school attendance (44.6%) and similar finding was reported in a study done in Delhi's resettlement colonies in 200 schools indicate that treatment substantially improved student attendance rate and health.<sup>16</sup>

During program implementation phase 26.5% faced some problems which were lack of provision of medicine timely but no difficulties were reported during drug administration. In our opinion this proves that administering deworming drugs in school is simple and does not necessarily require a formal training session for teachers and similarly no teacher reported problems or difficulties in drug distribution independently from the training received and from the presence of health personnel in the school on deworming day in study of Turkey.<sup>2</sup>

## CHAPTER 6

### CONCLUSION

School-based deworming program is one of the most cost-effective public health strategies to reach children with anti helminthes drug and health education. However, despite their low cost and high health impact, they are not implemented on a large scale.<sup>14</sup>The present survey investigated a school-based deworming program in far and mid western region of Nepal to assess the community people, health workers and school teacher's perception and support towards these programs. Information from 493 households and 83 school teachers was collected by structured questionnaires.

The study revealed very good coverage of school deworming program in both districts (92%). The coverage was highest in class three which was 95%. Wide variation in coverage among male and female students was not noticed. In comparison to coverage of two districts, coverage was slightly higher in Kailai district with about two percentages. In Surkhet district a bit variation was noticed in coverage of drug among male and female students of class three and four but the reason was not known.

The study revealed that 91% out of 83 school teachers, knew about the school deworming program through health worker or health related organizations. Majority of the respondent mentioned that the presence of student increases at the day of drug distribution. It was good to know through teachers that more than 90% of students participated voluntarily to intake drug. Almost all the teachers responded that students ingest drug in their presence. Regarding provision of drug to those students who were ill on the day of drug distribution, 82% of the teachers mentioned that they provided them at school after they get well and resume school. This might be the one of the supporting factor behind high coverage of drug. Teachers' perception shows good impact of program in child health. Teachers didn't notice any major side effects of the deworming drug. In future to make program more effective 48% teachers recommended use of health workers for drug distribution. It was nice to know that more than 73% of teachers didn't face any problem during program implementation.



Similarly, the study revealed that 91% of the Parents had heard about worm infestation. Parents perceived that most of the people (41.4%) suffer by worm infestation due to drinking dirty water. About 30% parents perceived having hygienic foods and avoiding stale food as a preventive measure of worm infestation. Surprisingly study explored that 98.6% of parents had knowledge that worm infestation must be treated to get cured. Study shows that, children were the most common means (87.6 %) for parents to know about school deworming program. Almost 90% of parents were aware that their children had received albendazole at school. Majority of the respondent had good response toward the school deworming program i.e.98%. About 30% parents responded it's a good program because it is beneficial to child health. Fifty one percent of parents recommended teacher's role would be better for drug distribution because students obey teachers'. All most all parents (99%) want continuation of the school deworming program in future as well. 25% of Parents perceived that it should be continued to prevent worm infestation in children. More than half of the respondents noticed positive changes at their child health after having medicine. About 17% parents noticed worm in stool of their children after receiving drug at school. Study result revealed an interesting finding that 93% of respondents are willing to pay for the drug in future if they have to pay for it.

Hence it could be concluded that overall perception towards the program of parents and teachers was good and the coverage was also quiet good in all primary classes but worm infestation is not caused due to single reasons. It has multiple causations, so to control the problem of worm infestation the problem of drinking water, minimization of open defecation, behavioral factors such as hand washing practice, feeding habit should also should not overlooked.

However, drug therapy alone is only a short term measure for reducing worm infection in a target population. Re-infection is frequent within a short period. Control measures in schools and communities through improved sanitation and hygiene along with de-worming need to be ensured to prevent infection and re- infection.

## **CHAPTER 7**

### **RECOMMENDATION**

The recommendations included in this section are primarily based on the findings of the study.

❖ **Recording and reporting system :**

Recording and reporting status was not found in proper and well arranged manner. There was not a uniform format for recording and reporting of student's details. Caste/ethnicity, class, gender etc were not clearly noted in case of Surkhet District. So, we were unable to find out the ethnicity wise coverage of the program. So, there should be an urgent need to develop a uniform format including such things for recording and reporting. Recording and reporting status should be strengthen and on timely. It would be better to incorporate the data of school deworming program in HMIS and EMIS.

❖ **Logistic supply:**

It was observed that the school deworming schedule was not uniform and not on time. It was due to delay and inadequate supply of drugs from center. So, drugs should be supply on time and in adequate amount. Another thing we observed is that, in case of Kailali the drugs was supplied from DPHO to NGOs and then to school. Peripheral health institutions were not involved in government program. So, drugs should be supply through the DPHO channel.

❖ **Human Resource:**

Human resource is the vital component of any program. So, proper defining the role and responsibility as well as capacity development of human resource is so must. From our study we found that there was no provision of focal teacher as well as orientation to the teacher in many schools. So, it is urgent need to assign a focal teacher in each school and orient to them about the program. Similarly, orientation should be given to resource person from DEO, member of school management committee and Health institution in charges of peripheral health institution.

❖ **Financial support:**

Through discussion with focal person we found that the transportation of drug is quite hard at remote areas and inability of providing training to teacher and health worker due to lack of financial support from central level. Similarly, due to lack of incentive school teacher and health worker do not show much interest toward this program. So, there should be proper allocation of budget to the program.

❖ **Schedule of the programme:**

We found that there was not the uniform and fixed interval of school deworming schedule. So, the program should be performed uniformly and regularly at an interval of six months. It would be better to made fixed program schedule from the central level. It should also be coincides with national deworming program so that the program would be more effective.

❖ **Sanitation and hygiene:**

Worm infestation is not caused due to single reasons. It has multiple causation, so to control the problem of worm infestation the problem of drinking water, prevention of open defecation, behavioral factors such as hand washing practice, feeding habit should also be considered. During our study we observed that there was no access of safe drinking water as well as sanitary toilets. So, there should be the provision of adequate and safe drinking water, sanitary disposal of excreta including sanitary toilets.

❖ **Others:**

Drug should be provided to private as well as community school children and out of school children. So, further co-ordination among VDC authority, health institution and school management committee may be fruitful.

## **CHAPTER 8**

### **LIMITATIONS OF THE STUDY**

- The result of the study might not represent all of the program districts of Nepal because the study was conducted purposively in only 2 districts.
  
- The study was conducted after 4-6 months of last round so, some amount of recall and reporting bias cannot be ruled out.

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## **ANNEXES**

### **Annex I: Research Team**

Dr. Gajananda Prakash Bhandari	-	Senior Epidemiologist
Ms. Femila Sapkota	-	Research Officer
Ms. Chandika Shrestha	-	Assistant Research Officer
Ms. Kritika Paudel	-	Senior Research Assistant
Mr. Kamal Kandel	-	Enumerator
Ms. Parikshya Dahal	-	Enumerator
Mr. Rabindra Prasad Tharu	-	Enumerator
Mr. Rupesh Gautam	-	Enumerator
Ms. Sunita Kumari Upreti	-	Enumerator
Mr. Umesh Ghimire	-	Enumerator



**Annex II: Study Site  
School Lists of Surkhet District**

SN	Name of VDC	Name of School	Name Of Health Institution	Ward No	Location
1	Babiyachaur	Gauri Shankar Pra V	Babiyachour SHP	5	Chature
2		Vidhyajyoti Ma V		3	Babiya Chaur
3		Shanti Pra V		7	Babiyachaur
4	Bidyapur	Ne ra pra vi	Bidyapur SHP	6	majhigaun
5		Janajagriti ni ma vi		7	Dulalthai
6		Janata Pra Vi		4	Vidhyapur
7	Birendranagar N.P.	Bhairab Ma V	Katakuwa HP	4	Bhairab Sthan
8		Chhabi Ni Ma Vi		3	Kalagaun
9		Pra V Nayagaun Dharapani		1	Nayagaun Dharapani
10		Saraswati Pra V		11	Chanaute
11		Saraswati Pra V		1	Wangesimal
12		Siddha Bahira Balakko School		10	Bi Na
13	Chhinchu	Ne Ra Pra V	Chhinchu SHP	7	Masina
14		Ni ma vi Tallo		2	Tallo thanichaur
15		Ne Ra Pra V		2	Tolikhola
16		Prabhat Ni Ma V		8	Thanichour Pipaldanda
17		Sarada Ma V		7	Chhicchu
18	Dasarathpur	Jeevan Jyoti U Ma V	Dasrathpur PHC	5	Dasharathpur
19		Krishna Pra V		7	Simle
20	Dharapani	Kalika Ma Vi	Dharapani SHP	5	Dharapani
21		Bhagwati Ne ra pra vi		7	Dharapani
22	Ghumkhahare	Bheri Ma Vi	Ghumkhahare SHP	8	Ghumkhahare
23		Ne Ra Ni ma vi		9	Bhedabari
24	Gumi	Janakalyan Pra V	Gumi SHP	3	Seraghari
25		Saraswoti Pra V		5	Ambapur
26	Guthu	Jeevanjyoti Ma Vi	Guthu SHP	4	Gutu
27		Shishu Shiksha Pra V		5	Julyahamul
28	Latikoili	Gangamala Ni Ma V	Latikoili HP	2	Pipira
29		Kopila Ma Vi		6	Parseni
30		Mangalgadhi Pra V		9	Dipnagar

31	Lekhgaun	Ne Ra Pra V Haldekharka	Lekhgaun HP	7	Haldekharka
32		Saraswoti Ma V		8	Sirupata
33	Lekhparajul	Janajyoti Ma Vi	Lekhparajul SHP	5	Kalapani
34		Samudaya Ni ma vi		5	Mohati
35	Maintada	Himalaya Pra V	Maintada SHP	1	Lamakhali
36		Janajyoti Ma V		4	Jhingni
37		Ni Ma V Lode		7	Lode
38	Malarani	Janagyanbhandar Ma Vi	Malarani SHp	7	Kotkhola
39		Pra V Rapat Malarani		6	Rapat
40	Salkot	Bhairab Ne Ra Pra Vi	Salkot PHC	6	Lagam
41		Surya Prakash U Ma Vi		5	Palaite
42	Satakhani	Chndrajyoti Ni Ma V	Satakhani SHP	4	Chandrapur
43		Ne Ra Pra Vi Pokharabhanjyang		7	Pokharabhanjyang
44	Uttarganga	Annanda Ma V	Uttarganga SHP	7	Krishnaganga
45		Haridil Bhumi Ni Ma Vi		8	Uttarganga

**List of schools of Kailali District**

Name of School	Name of VDC	Name of Health Institution	Ward No.	Location	Tel. No.
Bhagawati ratriya pra vi	Tikapur N.P	Joshipur Primary Health Care Centre	9	Rajipur	
Kalika Pra Vi	Tikapur N.P		8	Rajipur	692096
Karnali Ni Ma V	Tikapur N.P		9	Block No	
Jan Jagriti Ma V	Tikapur N.P		8	Sitapur	560262
Bp Pra V	Joshipur		2	Joshipur Piparkoti	
Jana Jagriti Pra V	Joshipur	Khailad Sub Health Post	3	Banjariya	91692101
Jana Prakash Ni Ma V	Joshipur		6	Muddhi	691705
Navajyoti Pra V	Khailad		2	Bijulia	692123
Ratriya Ni Ma V	Khailad	Darakh Sub Health Post	6	Khailad	
Bal Kalyan Pra V	Darakh		2	Karaicha	
Berath Sds Ni Ma V	Darakh	Pahalmanpur Health Post	5	Darakh	
Janata Pra V	Pahalmanpur		6	Tappa	
Pahalman Singh Memorial Ma V	Pahalmanpur	Masuria Sub Health	5	Ambasa	

Aadarsha Pra Vi Mholiya	Masuria	Post	2	Mholiya	
Singhasan Pra V	Masuria	Chaumala Primary Health Care Centre	3	Matakauna	91690201
Sunpal Pancha Pra V	Masuria		2	Indrapur	
Malika Ma V	Chaumala		2	Chaumala	91529129
Nabajeeban Pra V	Chaumala	Badeha Health Post	3	Maghi	
Pashupati Ni Ma V	Chaumala		5	Mangalpur	
Durga Bhabani Pra V	Sreepur		5	Haraiya Jamunabhadi	
Suryodaya Pra V	Sreepur	Beladevipur Sub Health Post	2	Bhuyara	
Rastriya Ni Ma V	Beladevipur		3	Balmi	
Samajjee Pra V	Beladevipur	Udasipur Primary Health Care Centre	1	Dhanchauri	
Maha Laxmi Pra V	Udasipur		2	Bhaisasur	621251
Shiva Ni MaV	Udasipur	Malakheti Health Post	9	Damaripur	621271
Durga Laxmi Ma V	Malakheti		7	Attaria	550040
Ganesh Pra V	Malakheti		6	Damaura	
Guashi Ma V	Malakheti		2	Malakheti	550334
Kedareswore Pra V	Bhajani		2	Chakuliya	

Mahayal Uchha Ma V	Bhajani		3	Danga	91580110
Panchodya Ma Vi	Dhangadi N.P		5	Dhangadi	521997
Saraswati Rastriya Pra V	Dhangadi N.P		1	Santinagar Dhangadi	91520617
Sharda U MaVi	Dhangadi N.P		2	Dhangadi	521089
Tribhuvan Ma V	Dhangadi N.P		3	Boradadi	91524247
Trinagar Ma Vi	Dhangadi N.P		1	Dhangadi	521635
Bhagabati Pra V	Geta	Geta Sub Health Post	9	Geta	
Ghosary Ni Ma V	Geta		6	Basantapur	91690771
Sarasati Uchha Ma V	Geta	Godawari Sub Health Post	4	Geta	575046
Janaki Pra V	Godawari		3	Sitapur Olani	
Sarshwoti Ma V	Godawari		4	Olani Gaida	91690399

### Annex III: Tools used for data collection



**III A: For Parents**  
**Nepal Health Research Council**  
**Nutrition Unit**  
**Ramshahpath, Kathmandu**

**Questionnaire for school deworming program (for parents):**

Name of interviewer:

Date:

District:

VDC:

Ward Number:

1. Name of respondent.....
2. Age/Sex .....
3. Ethnicity/ Caste: .....
4. Religion: .....
5. Total Family Size: .....
6. Family type: .....
7. Total number of children.....
8. Number of son .....                      Number of daughter.....
9. Total number of children studying in grade 1-5 ..... a) Son.... b) Daughter
10. School's name:
11. Respondent's relationship with the student: a) Mother b) Father c) Others (specify)

12. Educational Status:

S.N.	Education Status	Respondent
1.	Illiterate	
2.	Just literate	
3.	Primary	
4.	Lower Secondary	
5.	Secondary	
6.	SLC and above	

13. Occupational Status:

S.N.	Occupation	Respondent
1.	Housewife	
2.	Unemployed	
3.	Farmer	
4.	Laborer	
5.	Job holder	
6.	Others (specify)	

14. Average monthly income: .....

15. Do you know about worm infestation?

- a) Yes                      b) No

**(If No, go to question number 20)**

16. If yes, what are the causes of worm infestation? Please mention:
- a) Feeding without washing hands
  - b) Drinking dirty water
  - c) Washing hands with dirty water
  - d) Having raw vegetables and fruits without washing properly
  - e) Walking barefooted
  - f) Open defecation
  - g) Others (please specify)
17. What are the signs and symptoms of worm infestation? Please mention:
- a) Abdominal pain
  - b) Abdominal distension
  - c) Nausea/ Vomiting
  - d) Loss of appetite
  - e) Diarrhea/ loose motion
  - f) Anal itching
  - g) Presence of worm in stool
  - h) Others (please specify)
18. What can be the effects of worm infestation? Please mention:
- a) Physical growth retardation
  - b) Mental growth retardation
  - c) Decreased immunity
  - d) Anemia
  - e) Others (please specify)
19. What do you think are the protective measures against worm infestation?
- a) Washing fruits and green vegetables properly before eating
  - b) Avoiding open defecation
  - c) Washing hands with soap and water properly after defecation
  - d) Not walking barefooted



- e) Washing hands properly before meals
  - f) Others (please specify)
20. Do you think treatment is needed for worm infestation?
- a) Yes                      b) No                      c) Don't no
21. If Yes, why?
22. If No, why?
23. Have you heard of school deworming program?
- a) Yes    b) No
24. If yes, whom/where did you hear about it from?
- a) TV/Radio/FM      b) Health worker    c) FCHV    d) School teacher    e) Others (please specify)
25. Did your child receive the drug in school?
- a) Yes              b) No              c) Don't know
26. If yes, how many times?
- a) 1    b) 2    c) 3    d) 4
27. Do you think the school deworming program is good or not?
- a) Good                      b) Bad                      c) Don't know
- (If, Bad, go to question no 29)**
28. If good, Why?
29. If bad, why?
30. Whose role out of the following do you think is most appropriate in the distribution of drug?
- a) School teacher    b) Health worker    c) Family member    d) Others (please specify)
31. Do you think this program needs to be continued in future and why?
- a) Yes    b) No

32. If Yes, why?

33. If No, why not?

34. Did you notice any changes in your child's health after the intake of the drug?

- a) Yes                      b) No                      c) Don't Know

35. If yes, what changes did you notice?

- a) Decreased abdominal pain
- b) Decreased abdominal distension
- c) Increased appetite
- d) Increased interest in study
- e) Cleverer than before
- f) Others (please specify)

36. Did you notice worms in your child's stool after having taken the drug?

- a) Yes                      b) No                      c) Don't know

37. If albendazole tablet is not found free of cost, are you ready to pay for it?

- a) Yes                      b) No

38. Do you have any suggestions for the program?



17) To whom do you inform about the drug distribution day?  
a) Students    b) Parents                      c) Teachers                      d) Other (Specify)

18) Can you tell about last date of de-worming drug supply in your school?

19) How many doses of Drugs did you supply to the students?  
a) One                      b) two                      c) three                      d) four

20) How many students were present at drug distribution day?  
a) More than other day    b) Same as other day                      c) Less than other day

21) What type of student's participation do you find to consume the drug?  
a) Voluntary participation    b) Forceful participation    c) Other (Specify) .....

22) Did all students consume the drugs in your presence?  
a) Yes                      b) No                      c) Other (Specify).....

**(If yes, skip to Question no. 25.)**

23) If not, why did they deny taking the drugs? Mention the reasons.

24) Which group was rejecting the drugs?  
a) Male student                      b) Female student                      c) Dalit student  
d) Janajati student                      e) All group equally

25) What did you did to the students who were ill on the day of drug distribution?  
a) Give drug on school at after the child become well  
b) Sent medicine with parents and tell them to give children after the child become well  
c) Leave, as it is  
d) Other (specify)

26) What type of other teacher's response did you find towards the program? And why?  
a) Good response                      b) Bad response                      c) Not good not bad  
d) Others (Specify)

27) What type of parent's response did you find towards the program? And why?  
a) Good response                      b) Bad response                      c) Not good not bad  
d) Others (Specify)

28) In your opinion, is School-deworming program beneficial?  
a) Yes                      b) No

**(If no skip to question number 30)**

29) If yes, what are the benefits of the program? List them:

30) Did you find any reported side effects of the drug?

a) Yes                                      b) No                                      d) Others (Specify)

31) If yes, what are the side effects of the drug?

a) Nausea/Vomiting                                      b) Pain abdomen  
c) Fever    d) Others (Specify)

32) Did you find any change on nutritional status of the students after implementing the program?

a) Yes                                      b) No **(If no skip to question number 34)**                                      c) Don't know

33) If yes, what are the changes you found? List them:

34) What are the other positive impacts of the program?

a) Improved health status of the children                                      b) Increase in school attendance rate  
c) Increase in school performance of the students                                      d) Others (Specify)

**Other Information:**

35) In your opinion, whose role is better for program implementation and why?

a) Teacher's    b) Health worker's  
c) Parents    d) other (Specify).....

36) Have you faced any problem/constrain during the program implementation?

a) Yes                                      b) No **(If no skip to question number 38)**

37) If yes, what are the problems and constrains you faced during the program implementation?

38) In your opinion how could we include the children of school going age but not going school through this program?

39) Do you have any suggestions to the program? If yes, List them:

**40) Information on coverage (data taken from the record of academic year 2065/66):**

Grade		Total number of students in class		Number of students taking albendazole tablet		Percentage	
		1 <sup>st</sup> phase	2 <sup>nd</sup> phase	1 <sup>st</sup> phase	2 <sup>nd</sup> phase	1st	2nd
1.	Male						
	Female						
	Dalit						
	Janajati						
	<b>Total</b>						
2.	Male						
	Female						
	Dalit						
	Janajati						
	<b>Total</b>						
3.	Male						
	Female						
	Dalit						
	Janajati						
	<b>Total</b>						
4.	Male						
	Female						
	Dalit						
	Janajati						
	<b>Total</b>						
5.	Male						
	Female						
	Dalit						

	Janajati						
	<b>Total</b>						
<b>Grand Total (1-5)</b>	Male						
	Female						
	Dalit						
	Janajati						
	<b>Total</b>						

**Observation Checklist for School:**

- 1) Provision for toilet: a) Yes b) No
- 2) Number of available toilet:
- 3) Provision of toilets, a) For Teacher only b) For Student only c) For both
- 4) Provision of separate toilets for girls and boys: a) Yes b) No
- 5) Availability of safe drinking water: a) Yes b) No
- 6) Availability of hand washing facility to the students: a) Yes b) No
- 7) Availability of soap or ash to the students hand washing: a) Yes b) No
- 8) Is there open defecation practices around the school premises:  
a) Yes b) No

### **IIIC: Key informant interview for D(P)HO**

An assessment of school deworming program in Kailali and Surkhet districts.

#### **Guideline for key informant interview for DPHO**

1. Introduction about the school deworming program.
2. When did this program implemented in your district?
3. How is the program implementation strategy?
4. How do you manage the drugs?
5. How many drugs did you receive in current fiscal year (2066) for school deworming program?
6. Any focal person for the program in DPHO and peripheral health institution?
7. Any NGOs/CBOs assist to implement the program? if yes, what type of assistant?
8. How many schools did you covered?
9. How is the coordination between DPHO and DEO for the program implementation?
10. Monitoring and supervision for the program?
11. Coverage of the program?
12. Reporting status of the drug distribution?
13. What type teachers/ parents and students response did you find towards the program?
14. What type of impact did you find about the program?
15. Problem and constraints about the program?
16. Strength and weakness of the program?
17. In your opinion, how we include the school age but not school going children in the program?
18. Schedule of school deworming program in your district.
19. Any suggestion to the program?
20. Why program implement in mid and far western development region?
21. Any worm infestation implementing the program?



### **IIID: Key informant interview for DEO**

An assessment of school deworming program in Kailali and Surkhet districts

#### Guideline for key informant interview for DEO

1. Introduction about the school deworming program?
2. When did school deworming program was started in your district?
3. How did you manage the drug (albendazole)?
4. Practice of orientation of Training for the teacher, parents and students yes or no?  
If yes when where and how many days?
5. How many schools did you covered?
6. What type of roles of DEO and schools for the implementation of the program?
7. Any focal person at DEO to monitor and supervision of the program?
8. Coordination between DEO and DPHO?
9. What type of response did you find by teacher, health worker, parents and students in this program?
10. Mechanism of monitoring and supervision of the program from DEO and from Central level?
11. Recording and reporting status of the program?
12. Coverage of the program?
13. Impact of the program?
14. Problems and constraints of the program?
15. Strengths and weakness of the program?
16. Suggestions for the program?
17. Local NGOs are involving in this program? What is your response to those organizations?

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**Nepal Health Research Council (NHRC)**

Post Box No.: 7626, Ramshah Path, Kathmandu, Nepal

Tel: +977-1-4254220 / 4227460

Fax: +977-1-4262469 / 4268284

E-mail: [nhrc@nhrc.org.np](mailto:nhrc@nhrc.org.np)

Website: <http://www.nhrc.org.np>

