

**NATIONAL INSTITUTE OF MALARIOLOGY, PARASITOLOGY &  
ENTOMOLOGY (NIMPE)**



**FINAL REPORT  
RESULT OF THE SURVEY ON SITUATION STHS OF  
PRIMARY SCHOOL CHILDREN IN 21 PROVINCES IN  
VIETNAM, 2016**

**(The survey was conducted and reported by NIMPE, the  
report is submitted to Evidence Action)**

**HANOI, 2016**

# **Final report**

## **Result of the survey on situation STHs of primary school children in 21 provinces in Vietnam, 2016**

### **1. BACKGROUND**

Viet Nam is located in tropical with climate conditions; living habits and environmental hygiene are favorable for the development and spread of the parasite. The parasitic worm disease has become a social diseases cause more harm long-term acute as well as affecting people's health, physical development of children and mentally, to reduce serious labor productivity and adverse impacts on the nutritional status of the community.

For a long time now, control on helminth diseases are not interested, underinvestment and lack of resources. The implementation of the prevention of helminth diseases has become urgent and necessary in health activities and primary health care.

Soil transmitted helminthiasis include *Ascaris*, *Trichuris* and hookworm have been identified circulating in 53/63 provinces are endemic areas these diseases. In some provinces the prevalence of STH is still very high, above 80%. Highest prevalence is in the north mountain region and follows after the central region and then to the south region.

Worm infections are common and the prevalence of worm infection in Vietnam varies throughout the country. These results in the prevalence for roundworm are 10-95%, whipworm 0.5-89% and hookworm 30-69%. The infection rate in Vietnam for multiple infections is 60-70%. A nationwide estimation of roundworm infection is about 60 million people, for whipworm it is approximately 40 million and for hookworm also about 40 million (NIMPE 2000). Children and women of child bearing age are the best effect by worm infection. The worm infections are widely distributed throughout the country. Its joint prevalence in the North is roughly between 70-95%, in the Centre 50-80% and in the South 15-50%. And primary school age children are evaluated as the most vulnerable group.

Viet Nam has had a long history of mass de-worming programs for school age children from 2000 to now, and a more recent record of programs for pre-school children and women of reproductive age. These programs have been funded by a large number of donors, through a variety of government agencies and local organizations, with differing target populations and geographic coverage. Most have been very successful in lowering prevalence rates immediately following MDA. There remain real gaps in coverage, and STH prevalence for school aged children in selected provinces in 2006-2010 ranged from

9.2% to 74.9%. Some provinces are endemic STH, where prevalence STH more than 20%, were conducted MDA for STH control.

During the last 5 years, WHO and MOH conducted at least 6 rounds of deworming. Based on this experience, the total population at risk in Vietnam is over 25 millions individuals. They comprise of three distinct risk groups; 6 million preschool children, 7.2 million school children and 12 million women who live in areas where prevalence of STH is moderate to high.

Up to now, Vietnam do not have data about prevalence of STH infection in School Age Children in the 21 provinces (8 in the North, 2 in the Centre and 11 provinces in the South of Vietnam). And no any MDA activities for STH control in those 20 provinces except Vinh Phuc province where had MDA in November 2015.

With the fund supported by Evidence Action from USA, NIMPE will conduct a lagersurvey for determine the prevalence of STH infection in school age children in the 21 provinces in Vietnam.

When the STH survey complete, the prevalence of STH will be determined and the plan of STH control for SAC in the 21 provinces will be developed base on the achieve data.

In January 2016, NIMPE conduct the survey in 6 provinces including Ha Noi, Tuyen Quang, Hai Phong, Hai Duong, Hung Yen and Ninh Binh provinces. From April to May 2016, the surveys were carried out in other 15 provinces.

## **2. MATERIALS AND METHODS**

### **2.1 Study location**

Twenty one provinces and cities including Ha Noi, Tuyen Quang, Hai Phong, Hai Duong, Hung Yen, Ninh Binh, Quang Ninh, Vinh Phuc, Da Nang, Binh Thuan, An Giang, Bac Lieu, Binh Duong, Can Tho, Hau Giang, Long An, Soc Trang, Tien Giang, Ho Chi Minh, Tra Vinh and Vinh Long.

### **2.2 Duration of research**

From November 2015 to May 2016

### **2.3 Research Methodology**

- Objective of the survey: Children in the primary school in 21 selected provinces in Vietnam.
- Five districts in each province were random selected. Then, in each selected district, the one primary schools of each district was random selected base on the list of the name of all primary schools in the each district/city.
- Sample size: in each selected primary school, children were random selected according to sampling by study teams. As least 75 children were random selected base on list of name of grade 3 first. Some school were not enough children in grade 3, the extra children

from grade 4 at random selection, and some school was still not enough children, children in grade 5 were selected for survey.

- Cross-sectional descriptive survey.
- Examination by Kato-Katz method. Each sample 2 slides, taking the average value to calculate the prevalence and intensity of infection.
- All children in all schools be notified and the sampling bags from the previous day, the bags are labeled with full name, class, age, sex complete each grade. The next morning the samples were collected by homeroom teacher, NIMPE and the examination run in the field.
- Classification of degree of infection according to WHO (1998)

**Table 1. Classification of degree of STH infection**

Worm	Light (No.egg/g)	Median (No.egg/g)	Heavy (No.egg/g)
Ascaris	1 - 4.999	5.000 - 49.999	$\geq 50.000$
Trichuris	1 - 999	1.000 - 9.999	$\geq 10.000$
Hookworm	1 - 1.999	2.000 - 3.999	$\geq 4.000$

## 2.5 Treatment

-Treatment: All the cases tested positive for any kind of worms that were treated according to guidelines issued by the Ministry of Health and single dose Albendazole 400mg for any one. After stool samples were tested, next day, health staffs of the commune health station used albendazole 400mg one dose treated the positive children only. The drugs were provided by NIMPE.

- The term specimens after testing were treated in accordance with biosafety regulations and handling of medical waste.

**2.6 Data analysis:** The data of the survey were imported and analyzed with statistical software by Microsoft Excel and analyzed by Stata.

**The administration information of the selected districts, commune, primary schools, rural or urban in 21 provinces**

<b>ID</b>	<b>Name of provinces</b>	<b>Name of district</b>	<b>Name of commune</b>	<b>Name of primary school</b>	<b>Rural (Nông thôn) or Urban (Thành thị)</b>
1	<b>An Giang</b>	An Phú	Khánh An	TH A Khánh An	Nông Thôn
		Phú Tân	Hòa Lạc	TH B Hòa Lạc	Nông Thôn
		Châu Phú	Bình Phú	TH Bình Phú	Nông Thôn
		Chợ Mới	Long Giang	TH A Long Giang	Nông Thôn
		Thoại Sơn	Vọng Đông	TH A Vọng Đông	Nông Thôn
2	<b>Bạc Liêu</b>	TP Bạc Liêu	Vĩnh Trạch Đông	TH Thuận Hòa	Thành phố
		Đông Hải	Điền Hải	TH Nguyễn Văn Trỗi	Nông Thôn
		Vĩnh Lợi	Vĩnh Hưng A	TH Vĩnh Hưng A	Nông Thôn
		Phước Long	Vĩnh Phú Tây	TH Vĩnh Phú Tây	Nông Thôn
		Hòa Bình	Vĩnh Hậu	TH Vĩnh Hậu	Nông Thôn
3	<b>Bình Dương</b>	TP. Thủ Dầu Một	P. Hiệp An	TH Nguyễn Hiền	Thành phố
		TX. Dĩ An	P. Dĩ An	TH Lê Quý Đôn	Thành phố
		Bàu Bàng	Cây Trường	TH Bàu Bàng	Nông Thôn
		Dầu Tiếng	An Lập	TH An Lập	Nông Thôn
		Bắc Tân Uyên	Đất Cuốc	TH Đất Cuốc	Nông Thôn
4	<b>Bình Thuận</b>	Tuy Phong	Phú Lạc	TH Vĩnh Hạnh	Nông Thôn
		Bắc Bình	Phan Tiến	TH Phan Tiến	Nông Thôn
		Hàm Thuận Bắc	La Dạ	TH La Dạ	Nông Thôn
		Hàm Thuận Nam	Hàm Càn	TH Hàm Càn	Nông Thôn
		Tánh Linh	Thị Trấn Lạc Tánh	TH Tân Thành	Thành phố
5	<b>Cần Thơ</b>	Q. Ninh Kiều	P. An Lạc	TH An Lạc	Thành phố
		Cờ Đỏ	Thạnh Phú	TH Thạnh Phú 3	Nông Thôn
		Vĩnh Thạnh	Vĩnh Trinh	TH Vĩnh Trinh 1	Nông Thôn
		Q. Thốt Nốt	P. Thuận Hưng	TH Thuận Hưng 3	Thành phố
		Q. Ô môn	P. Châu Văn Liêm	TH Số 4 Châu Văn Liêm	Thành phố
6	<b>Đà Nẵng</b>	Sơn Trà	An Hải Đông	TH Ngô Gia Tự	Thành phố
		Liên Chiểu	Hòa Hiệp Bắc	TH Hải Vân	Thành phố
		Cẩm Lệ	Hòa Thọ Tây	TH Ông Ích Đường	Thành phố
		Ngũ Hành Sơn	Hòa Hải	TH Lê Văn Hiến	Thành phố
		Hòa Vang	Hòa Phú	TH Hòa Phú	Thành phố
7	<b>Hà Nội</b>	Ba Vì	Ba Trại	TH Ba Trại	Nông Thôn
		Mỹ Đức	Bột Xuyên	TH Bột Xuyên	Nông Thôn

		Ứng Hòa	TT Vân Đình	TH TT Vân Đình	Thành phố
		Sơn Tây	Sơn Đông	TH Sơn Đông	Nông Thôn
		Thanh Oai	Tam Hưng	TH Tam Hưng	Nông Thôn
8	<b>Hải Dương</b>	Kim Thành	Tuấn Hưng	TH Tuấn Hưng	Nông Thôn
		Nam Sách	Nam Hồng	TH Nam Hồng	Nông Thôn
		Thanh Hà	Việt Hồng	TH Việt Hồng	Nông Thôn
		Cầm Giàng	Cầm Định	TH Cầm Định	Nông Thôn
		Gia Lộc	Toàn Thắng	TH Toàn Thắng	Nông Thôn
9	<b>Hải Phòng</b>	Kiến Thụy	Kiến Quốc	TH Kiến Quốc	Nông Thôn
		Lê Chân	P.Vĩnh Niệm	TH Vĩnh Niệm	Thành phố
		Thủy Nguyên	Minh Tân	TH Minh Tân	Nông Thôn
		An Lão	Tân Dân	TH Tân Dân	Nông Thôn
		Cát Hải	Phù Long	TH Phù Long	Nông Thôn
10	<b>Hậu Giang</b>	Vị Thủy	Vị Thắng	TH Vị Thắng 1	Nông Thôn
		Châu Thành A	TT Rạch Gòi	TH Rạch Gòi A	Thành phố
		Phụng Hiệp	Tân Bình	TH Tân Bình 1	Nông Thôn
		TP Vị Thanh	Vị Tân	TH Bùi Thị Xuân	Thành phố
		Long Mỹ	TT. Long Mỹ	TH Long Mỹ	Thành phố
11	<b>Hưng Yên</b>	Tiên Lữ	Ngô Quyền	TH Ngô Quyền	Nông Thôn
		Kim Động	Vĩnh Xá	TH Vĩnh Xá	Nông Thôn
		Ân Thi	Đa Lộc	TH Đa Lộc	Nông Thôn
		Văn Giang	Phụng Công	TH Phụng Công	Nông Thôn
		Mỹ Hào	Hòa Phong	TH Hòa Phong	Nông Thôn
12	<b>Long An</b>	TP Tân An	Hướng Thọ Phú	TH Hướng Thọ Phú	Thành phố
		TX Kiến Tường	Thanh Trị	TH Thanh Trị	Thành phố
		Cần Giuộc	Thị Trấn	TH Nguyễn Thái Bình	Thành phố
		Đức Hòa	Đức Hòa Thượng	TH Huỳnh Văn Tạo	Nông Thôn
		Châu Thành	Thuận Mỹ	TH Thuận Mỹ	Nông Thôn
13	<b>Ninh Bình</b>	Kim Sơn	Yên Mật	TH Yên Mật	Nông Thôn
		Yên Khánh	TT. Yên Ninh	TH Kim Động	Thành phố
		Yên Mô	Yên Nhân	TH Yên Nhân	Nông Thôn
		Gia Viễn	Liên Sơn	TH Liên Sơn	Nông Thôn
		Nho Quan	Thanh Lạc	TH Thanh Lạc	Nông Thôn
14	<b>Quảng Ninh</b>	Hoành Bồ	Sơn Dương	TH Sơn Dương	Nông Thôn
		TP. Hạ Long	Phường Hà Phong	TH Hà Phong	Thành phố
		Quảng Yên	Tiên An	TH Tiên An	Nông Thôn
		Tiên Yên	Hải Lạng	TH Hải Lạng	Nông Thôn
		Vân Đồn	Hạ Long	TH Hạ Long	Nông Thôn
15	<b>Sóc Trăng</b>	Kê Sách	Thới An Hội	TH Thới An Hội 1	Nông Thôn
		Châu Thành	Phú Tâm	TH Phú Tâm A	Nông Thôn
		Vĩnh Châu	Vĩnh Tân	TH Vĩnh Tân 1	Nông Thôn
		Mỹ Xuyên	Ngọc Tố	TH Ngọc Tố 1	Nông Thôn
		Mỹ Tú	Thuận Hưng	TH Thuận Hưng 1	Nông Thôn

16	<b>Tiền Giang</b>	Gò Công Đông	Tân Thành	TH Tân Thành 1	Nông Thôn
		Tân Phú Đông	Tân Phú	TH Tân Phú	Nông Thôn
		Chợ Gạo	Xuân Đông	TH Xuân Đông	Nông Thôn
		Cái Lậy	Mỹ Thành Nam	TH Mỹ Thành Nam	Nông Thôn
		Cái Bè	Hòa Hưng	TH Hòa Hưng 1	Nông Thôn
17	<b>TP. HCM</b>	Cần Giờ	Tam Thôn Hiệp	TH Tam Thôn Hiệp	Nông Thôn
		Quận 8	Phường 15	TH Phạm Nguyên	Thành phố
		Nhà Bè	Hiệp Phước	TH Nguyễn Văn Tạo	Nông Thôn
		Hóc Môn	Đông Thạnh	TH Trần Văn Danh	Nông Thôn
		Bình Chánh	Bình Lợi	TH Bình Lợi	Nông Thôn
18	<b>Trà Vinh</b>	Trà Cú	Đôn Xuân	TH Đôn Xuân C	Nông Thôn
		Tiểu Cần	Hiếu Trung	TH Hiếu Trung B	Nông Thôn
		Cầu Kè	Phong Thạnh	TH Phong Thạnh A	Nông Thôn
		Cầu Ngang	Kim Hòa	TH Kim Hòa	Nông Thôn
		Càng Long	Phương Thạnh	TH Phương Thạnh A	Nông Thôn
19	<b>Tuyên Quang</b>	Sơn Dương	Bình Yên	TH Bình Yên	Nông Thôn
		Yên Sơn	Thái Bình	TH Thái Bình	Nông Thôn
		TP Tuyên Quang	Lưỡng Vượng	TH Lưỡng Vượng	Thành phố
		Hàm Yên	Đức Ninh	TH Đức Ninh	Nông Thôn
		Chiêm Hóa	Xuân Quang	TH Xuân Quang	Nông Thôn
20	<b>Vĩnh Long</b>	Trà Ôn	Xuân Hiệp	TH Xuân Hiệp A	Nông Thôn
		Tam Bình	Ngãi Tứ	TH Ngãi Tứ	Nông Thôn
		Vũng Liêm	Trung Thành Tây	TH Trung Thành Tây	Nông Thôn
		Bình Tân	Mỹ Thuận	TH Mỹ Thuận B	Nông Thôn
		Long Hồ	Phước Hậu	TH Phước Hậu B	Nông Thôn
21	<b>Vĩnh Phúc</b>	Vĩnh Yên	Liên Bảo	TH Liên Minh	Thành phố
		Phúc Yên	Hùng Vương	TH Hùng Vương	Thành phố
		Vĩnh Tường	Vĩnh Thịnh	TH Vĩnh Thịnh	Nông Thôn
		Lập Thạch	Quang Sơn	TH Quang Sơn	Nông Thôn
		Sông Lô	Lãng Công	TH Lãng Công	Nông Thôn

### 3. RESULTS

#### 3.1. THE RESULTS OF THE STH SURVEY IN ANGIANG PROVINCE

Data analysis of fecal examination for primary school student: Preliminary results

Table 1: Stool sample collection process

Province	Date	District	No. emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
An Giang	12/4	Thoai Son	100	50	1
	13/4	An Phu	100	25	0
	14/4	Chau Phu	100	23	0
	15/4	Phu Tan	100	19	0
	16/4	An Phu	100	25	0
	17/4	Chau Phu	100	30	0
	18/4	Phu Tan	100	45	0
	19/4	Cho Moi	100	57	0
<b>Total</b>			<b>800</b>	<b>274</b>	<b>1</b>

Table 2: Distribution of participant samples according to districts

District	No. samples	Percent %
Thoai Son	50	18.2
An Phu	50	18.2
Chau Phu	53	19.3
Phu Tan	64	23.4
Cho Moi	57	20.8
<b>Total</b>	<b>274</b>	<b>100.0</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	274	100.0
4	0	0.00
5	0	0.00
<b>Total</b>	<b>274</b>	<b>100.0</b>

Table 4: General helminth infection rate of by districts.

District	No. sample	No. General infection	Percent	95 % CI
Thoai Son	50	0	0.00	
An Phu	50	0	0.00	
Chau Phu	53	0	0.00	
Phu Tan	64	0	0.00	
Cho Moi	57	1	1.75	
<b>Total</b>	<b>274</b>	<b>1</b>	<b>0.36</b>	<b>-0.004 – 0.011</b>



Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Thoai Son	50	0	0.00	0	0.00	0	0.00	0	0.00
An Phu	50	0	0.00	0	0.00	0	0.00	0	0.00
Chau Phu	53	0	0.00	0	0.00	0	0.00	0	0.00
Phu Tan	64	0	0.00	0	0.00	0	0.00	0	0.00
Cho Moi	57	0	0.00	1	1.75	0	0.00	1	1.75
<b>Total</b>	<b>274</b>	<b>0</b>	<b>0.00</b>	<b>1</b>	<b>0.36</b>	<b>0</b>	<b>0.00</b>	<b>1</b>	<b>0.36</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Thoai Son	0	0	0	0	0	0	0
An Phu	0	0	0	0	0	0	0
Chau Phu	0	0	0	0	0	0	0
Phu Tan	0	0	0	0	0	0	0
Cho Moi	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Thoai Son	50	0	0.00	0	0.00	0	0.00
An Phu	50	0	0.00	0	0.00	0	0.00
Chau Phu	53	0	0.00	0	0.00	0	0.00
Phu Tan	64	0	0.00	0	0.00	0	0.00
Cho Moi	57	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>274</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Thoai Son	0	0	0	0	0	0	0	0
An Phu	0	0	0	0	0	0	0	0
Chau Phu	0	0	0	0	0	0	0	0
Phu Tan	0	0	0	0	0	0	0	0
Cho Moi	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 9: Intensity of Trichuris infection by district

District	No. sample	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Thoai Son	0	0	0.00	0	0.00	0	0.00
An Phu	0	0	0.00	0	0.00	0	0.00
Chau Phu	0	0	0.00	0	0.00	0	0.00
Phu Tan	0	0	0.00	0	0.00	0	0.00
Cho Moi	1	1	100.00	0	0.00	0	0.00
<b>Total</b>	<b>1</b>	<b>1</b>	<b>100.00</b>	0	0.00	0	0.00

Table 10: Intensity of Trichuris infection by district

District	No. sample	Light infection		Medium infection		Heavy infection	
	Examination	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Thoai Son	50	0	0.00	0	0.00	0	0.00
An Phu	50	0	0.00	0	0.00	0	0.00
Chau Phu	53	0	0.00	0	0.00	0	0.00
Phu Tan	64	0	0.00	0	0.00	0	0.00
Cho Moi	57	1	1.75	0	0.00	0	0.00
<b>Total</b>	<b>274</b>	<b>1</b>	<b>0.36</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>



Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Thoai Son	0	0	0	0	0	0	0	0
An Phu	0	0	0	0	0	0	0	0
Chau Phu	0	0	0	0	0	0	0	0
Phu Tan	0	0	0	0	0	0	0	0
Cho Moi	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Thoai Son	26	0	0.00	24	0	0.00
An Phu	27	0	0.00	23	0	0.00
Chau Phu	27	0	0.00	26	0	0.00
Phu Tan	26	0	0.00	38	0	0.00
Cho Moi	25	0	0.00	32	0	0.00
<b>Total</b>	<b>131</b>	<b>0</b>	<b>0.00</b>	<b>143</b>	<b>0</b>	<b>0.00</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Thoai Son	26	0	0.00	24	0	0.00
An Phu	27	0	0.00	23	0	0.00
Chau Phu	27	0	0.00	26	0	0.00
Phu Tan	26	0	0.00	38	0	0.00
Cho Moi	25	0	0.00	32	1	3.13
<b>Total</b>	<b>131</b>	<b>0</b>	<b>0.00</b>	<b>143</b>	<b>1</b>	<b>0.70</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Thoai Son	26	0	0.00	24	0	0.00
An Phu	27	0	0.00	23	0	0.00
Chau Phu	27	0	0.00	26	0	0.00
Phu Tan	26	0	0.00	38	0	0.00
Cho Moi	25	0	0.00	32	0	0.00
<b>Total</b>	<b>131</b>	<b>0</b>	<b>0.00</b>	<b>143</b>	<b>0</b>	<b>0.00</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Thoai Son	26	0	0.00	24	0	0.00
An Phu	27	0	0.00	23	0	0.00
Chau Phu	27	0	0.00	26	0	0.00
Phu Tan	26	0	0.00	38	0	0.00
Cho Moi	25	0	0.00	32	1	3.13
<b>Total</b>	<b>131</b>	<b>0</b>	<b>0.00</b>	<b>143</b>	<b>1</b>	<b>0.70</b>

Table 19. The rate of mix-infection of STH of SAC in An Giang

Districts	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Thoai Son	0	0	0	0	0	0	0
An Phu	0	0	0	0	0	0	0
Chau Phu	0	0	0	0	0	0	0
Phu Tan	0	0	0	0	0	0	0
Cho Moi	1	1	100.00	0	0	0	0
<b>Total</b>	<b>1</b>	<b>1</b>	<b>100.00</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 20. The rate of mix-infection of STH of SAC in An Giang

Districts	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Thoai Son	50	0	0	0	0	0	0
An Phu	50	0	0	0	0	0	0
Chau Phu	53	0	0	0	0	0	0
Phu Tan	64	0	0	0	0	0	0
Cho Moi	57	1	1.75	0	0	0	0
<b>Total</b>	<b>274</b>	<b>1</b>	<b>0.36</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### 3.2 THE RESULTS OF THE STH SURVEY IN BACLIEU PROVINCE

Data analysis of fecal examination for primary school student: Preliminary results

Table 1: Stool sample collection process

Province	Date	District	No. esmitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Bạc Liêu	4/4/2016	Bac Lieu	80	57	0
	5/4/2016	Đông Hai	80	63	0
	6-7/4/2016	Vinh Loi	80	73	0
	8-9/4/2016	Phuoc Long	80	73	0
	10-11/4/2016	Hoa Binh	80	69	0
	<b>Total</b>			<b>400</b>	<b>335</b>

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
Bac Lieu	57	17.01
Đông Hai	63	18.80
Vinh Loi	73	21.79
Phuoc Long	73	21.79
Hoa Binh	69	20.59
<b>Total</b>	<b>335</b>	<b>100.0</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	296	88.36
4	39	11.64
5	0	0
<b>Total</b>	<b>335</b>	<b>100.0</b>

Table 4: General helminth infection rate of by districts.

District	No samples	No. General STH infection	Percent	95% CI
Vinh Trach Dong	57	2	3.51	-0.014-0.084
Dong Hai	63	3	4.76	-0.006-0.102
Vinh Loi	73	2	2.74	-0.011-0.065
Phuoc Long	73	4	5.48	-0.012-0.069
Hoa Binh	69	2	2.9	0.001-0.108
<b>Total</b>	<b>335</b>	<b>13</b>	<b>3.88</b>	<b>0.180-0.059</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vinh Trach Dong	57	2	3.51	0	0	0	0	2	3.51
Dong Hai	63	2	3.17	0	0	1	1.59	3	4.76
Vinh Loi	73	0	0	0	0	2	2.74	2	2.74
Phuoc Long	73	2	2.74	0	0	2	2.74	4	5.48
Hoa Binh	69	0	0	0	0	2	2.9	2	2.9
<b>Total</b>	<b>335</b>	<b>6</b>	<b>1.79</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>2.09</b>	<b>13</b>	<b>3.88</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vinh Trach Dong	2	2	100.0	0	0	0	0
Dong Hai	2	2	100.0	0	0	0	0
Vinh Loi	0	0	0.00	0	0	0	0
Phuoc Long	2	2	100.0	0	0	0	0
Hoa Binh	0	0	0.0	0	0	0	0
<b>Total</b>	<b>6</b>	<b>6</b>	<b>100.0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>





Table 10: Intensity of Trichuris infection by district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vinh Trach Dong	57	0	0	0	0	0	0
Dong Hai	63	0	0	0	0	0	0
Vinh Loi	73	0	0	0	0	0	0
Phuoc Long	73	0	0	0	0	0	0
Hoa Binh	69	0	0	0	0	0	0
<b>Total</b>	<b>335</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Vinh Trach Dong	0	0	0	0	0	0	0	0
Dong Hai	0	0	0	0	0	0	0	0
Vinh Loi	0	0	0	0	0	0	0	0
Phuoc Long	0	0	0	0	0	0	0	0
Hoa Binh	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 12: Intensity of Hookworm infection according to District

Provinces	No. sample	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vinh Trach Dong	0	0	0.0	0	0	0	0
Dong Hai	1	1	100.0	0	0	0	0
Vinh Loi	2	2	100.0	0	0	0	0
Phuoc Long	2	2	100.0	0	0	0	0
Hoa Binh	2	2	100.0	0	0	0	0
<b>Total</b>	<b>7</b>	<b>7</b>	<b>100.0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vinh Trach Dong	57	0	0.00	0	0	0	0
Dong Hai	63	1	1.59	0	0	0	0
Vinh Loi	73	2	2.74	0	0	0	0
Phuoc Long	73	2	2.74	0	0	0	0
Hoa Binh	69	2	2.9	0	0	0	0
<b>Total</b>	<b>335</b>	<b>7</b>	<b>2.09</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Vinh Trach Dong	0	0	0	0	0	0	0	0
Dong Hai	1	60	0	0	0	0	1	60
Vinh Loi	2	60 $\pm$ 24	0	0	0	0	2	60 $\pm$ 24
Phuoc Long	2	60	0	0	0	0	2	60
Hoa Binh	2	96 $\pm$ 36	0	0	0	0	2	96 $\pm$ 36
<b>Total</b>	<b>7</b>	<b>70.28<math>\pm</math>11.54</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>70.28<math>\pm</math>11.54</b>

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Vinh Trach Dong	30	1	3.33	27	1	3.70
Dong Hai	32	1	3.13	31	1	3.23
Vinh Loi	35	0	0.00	38	0	0.00
Phuoc Long	33	1	3.03	40	1	2.50
Hoa Binh	22	0	0.00	47	0	0.00
<b>Total</b>	<b>152</b>	<b>3</b>	<b>1.97</b>	<b>183</b>	<b>3</b>	<b>1.64</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Vinh Trach Dong	30	0	0	27	0	0
Dong Hai	32	0	0	31	0	0
Vinh Loi	35	0	0	38	0	0
Phuoc Long	33	0	0	40	0	0
Hoa Binh	22	0	0	47	0	0
<b>Total</b>	<b>152</b>	<b>0</b>	<b>0</b>	<b>183</b>	<b>0</b>	<b>0</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Vinh Trach Dong	30	0	0.00	27	0	0
Dong Hai	32	0	0.00	31	1	3.23
Vinh Loi	35	2	5.71	38	0	0.00
Phuoc Long	33	1	3.03	40	1	2.50
Hoa Binh	22	1	4.55	47	1	2.13
<b>Total</b>	<b>152</b>	<b>4</b>	<b>2.63</b>	<b>183</b>	<b>3</b>	<b>1.64</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Vinh Trach Dong	30	1	3.33	27	1	3.70
Dong Hai	32	1	3.13	31	2	6.45
Vinh Loi	35	2	5.71	38	0	0.00
Phuoc Long	33	2	6.06	40	2	5.00
Hoa Binh	22	1	4.55	47	1	2.13
<b>Total</b>	<b>152</b>	<b>7</b>	<b>4.61</b>	<b>183</b>	<b>6</b>	<b>3.28</b>

Table 19. The rate of mix-infection of STH of SAC in Bac Lieu

Distrits	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Vinh Trach Dong	2	2	100	0	0	0	0
Dong Hai	3	3	100	0	0	0	0
Vinh Loi	2	2	100	0	0	0	0
Phuoc Long	4	4	100	0	0	0	0
Hoa Binh	2	2	100	0	0	0	0
<b>Total</b>	<b>13</b>	<b>13</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 20. The rate of mix-infection of STH of SAC in Bac Lieu province

Distrits	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Vinh Trach Dong	57	2	3.51	0	0	0	0
Dong Hai	63	3	4.76	0	0	0	0
Vinh Loi	73	2	2.74	0	0	0	0
Phuoc Long	73	4	5.48	0	0	0	0
Hoa Binh	69	2	2.9	0	0	0	0
<b>Total</b>	<b>335</b>	<b>13</b>	<b>3.88</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### 3.3. THE RESULTS OF THE STH SURVEY IN BINH DUONG PROVINCE

Data analysis of fecal examination for primary school student: Preliminary results

Table 1: Stool sample collection process

Province	Date	District	No. emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Binh Duong	5-7/5/2016	Bac Tan Uyen	135	51	0
	7-9/5/2016	Bau Bang	190	77	0
	9-10/5/2016	Dau Tieng	120	53	0
	10-12/5/2016	Di An	150	57	0

	12-13/5/2016	Thu Dau Mot	150	88	0
	<b>Total</b>		<b>745</b>	<b>326</b>	<b>0</b>

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
Bac Tan Uyen	51	15.64
Bau Bang	77	23.62
Dau Tieng	53	16.26
Di An	57	17.48
Thu Dau Mot	88	27.00
<b>Total</b>	<b>326</b>	<b>100.0</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	326	100.0
4	0	0.00
5	0	0.00
<b>Total</b>	<b>326</b>	<b>100.0</b>

Table 4: General helminth infection rate of by districts.

District	No samples	No. General STH infection	Percent (%)	95% CI
Bac Tan Uyen	51	4	7.84	0.002-0.154
Bau Bang	77	5	6.49	0.009-0.121
Dau Tieng	53	5	9.43	0.013-0.176
Di An	57	0	0.00	0
Thu Dau Mot	88	0	0.00	0
<b>Total</b>	<b>326</b>	<b>14</b>	<b>4.29</b>	<b>0.021-0.065</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Bac Tan Uyen	51	1	1.96	0	0.00	3	5.88	4	7.84
Bau Bang	77	1	1.30	1	1.30	3	3.90	5	6.49
Dau Tieng	53	0	0.00	0	0.00	5	9.43	5	9.43
Di An	57	0	0.00	0	0.00	0	0.00	0	0.00
Thu Dau Mot	88	0	0.00	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>326</b>	<b>2</b>	<b>0.61</b>	<b>1</b>	<b>0.31</b>	<b>11</b>	<b>3.37</b>	<b>14</b>	<b>4.29</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Bac Tan Uyen	1	1	100	0	0.00	0	0.00
Bau Bang	1	1	100	0	0.00	0	0.00
Dau Tieng	0	0	0.00	0	0.00	0	0.00
Di An	0	0	0.00	0	0.00	0	0.00
Thu Dau Mot	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>2</b>	<b>2</b>	<b>100</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Bac Tan Uyen	51	1	1.96	0	0.00	0	0.00
Bau Bang	77	1	1.30	0	0.00	0	0.00
Dau Tieng	53	0	0.00	0	0.00	0	0.00
Di An	57	0	0.00	0	0.00	0	0.00
Thu Dau Mot	88	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>326</b>	<b>2</b>	<b>0.61</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Bac Tan Uyen	1	48	0		0		1	48
Bau Bang	1	168	0		0		1	168
Dau Tieng	0	0	0		0		0	0
Di An	0	0	0		0		0	0
Thu Dau Mot	0	0	0		0		0	0
<b>Total</b>	<b>2</b>	<b>108<math>\pm</math>60</b>	<b>0</b>		<b>0</b>		<b>2</b>	<b>108<math>\pm</math>60</b>

Table 9: Intensity of Trichuris infection by district

Distict	No. sample (+)	Light infection	Medium infection	Heavy infection
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		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Bac Tan Uyen	0	0	0.00	0	0.00	0	0.00
Bau Bang	1	1	100.00	0	0.00	0	0.00
Dau Tieng	0	0	0.00	0	0.00	0	0.00
Di An	0	0	0.00	0	0.00	0	0.00
Thu Dau Mot	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>1</b>	<b>1</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 10: Intensity of Trichuris infection by district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Bac Tan Uyen	51	0	0.00	0	0.00	0	0.00
Bau Bang	77	1	1.30	0	0.00	0	0.00
Dau Tieng	53	0	0.00	0	0.00	0	0.00
Di An	57	0	0.00	0	0.00	0	0.00
Thu Dau Mot	88	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>326</b>	<b>1</b>	<b>0.31</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean ± SD	No. sample (+)	Mean ± SD	No. sample (+)	Mean ± SD	No. sample (+)	Mean ± SD
Bac Tan Uyen	0	0	0	0	0	0	0	0
Bau Bang	1	48	0	0	0	0	1	48
Dau Tieng	0	0	0	0	0	0	0	0
Di An	0	0	0	0	0	0	0	0
Thu Dau Mot	0	0	0	0	0	0	0	0
<b>Total</b>	<b>1</b>	<b>48</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>48</b>

Table 12: Intensity of Hookworm infection according to District

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Bac Tan Uyen	3	3	100.00	0	0.00	0	0.00
Bau Bang	3	2	66.67	0	0.00	1	33.33

Dau Tieng	5	5	100.00	0	0.00	0	0.00
Di An	0	0	0.00	0	0.00	0	0.00
Thu Dau Mot	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>11</b>	<b>10</b>	<b>90.91</b>	<b>0</b>	<b>0.00</b>	<b>1</b>	<b>9.09</b>

Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Bac Tan Uyen	51	3	5.88	0	0.00	0	0.00
Bau Bang	77	2	2.60	0	0.00	1	1.30
Dau Tieng	53	5	9.43	0	0.00	0	0.00
Di An	57	0	0.00	0	0.00	0	0.00
Thu Dau Mot	88	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>326</b>	<b>10</b>	<b>3.07</b>	<b>0</b>	<b>0.00</b>	<b>1</b>	<b>0.31</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Bac Tan Uyen	3	48 $\pm$ 13.86	0	0	0	0	3	48 $\pm$ 13.86
Bau Bang	2	384 $\pm$ 264	0	0	1	9,528	3	3432 $\pm$ 3051.81
Dau Tieng	5	76.8 $\pm$ 11.76	0	0	0	0	5	76.8 $\pm$ 11.76
Di An	0	0	0	0	0	0	0	0
Thu Dau Mot	0	0	0	0	0	0	0	0
<b>Total</b>	<b>10</b>	<b>129.6<math>\pm</math>58.37</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>9,528</b>	<b>11</b>	<b>984<math>\pm</math>856.03</b>



Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Bac Tan Uyen	31	0	0.00	20	1	5.00
Bau Bang	44	1	2.27	33	0	0.00
Dau Tieng	32	0	0.00	21	0	0.00
Di An	32	0	0.00	25	0	0.00
Thu Dau Mot	47	0	0.00	41	0	0.00
<b>Total</b>	<b>186</b>	<b>1</b>	<b>0.54</b>	<b>140</b>	<b>1</b>	<b>0.71</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Bac Binh	31	0	0.00	20	0	0.00
Tuy Phong	44	1	2.27	33	0	0.00
Tanh Linh	32	0	0.00	21	0	0.00
Ham Thuan Bac	32	0	0.00	25	0	0.00
Ham Thuan Nam	47	0	0.00	41	0	0.00
<b>Total</b>	<b>186</b>	<b>1</b>	<b>0.54</b>	<b>140</b>	<b>0</b>	<b>0.00</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Bac Tan Uyen	31	1	3.23	20	2	10.00
Bau Bang	44	2	4.55	33	1	3.03
Dau Tieng	32	4	12.50	21	1	4.76
Di An	32	0	0.00	25	0	0.00
Thu Dau Mot	47	0	0.00	41	0	0.00
<b>Total</b>	<b>186</b>	<b>7</b>	<b>3.76</b>	<b>140</b>	<b>4</b>	<b>2.86</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys				Girls			
	n	No. (+)	% (+)	95% CI	n	No. (+)	% (+)	95% CI
Bac Tan Uyen	31	1	3.23	- 0.033- 0.097	20	3	15.00	- 0.015- 0.314
Bau Bang	44	4	9.09	0.004- 0.178	33	1	3.03	- 0.030- 0.091
Dau Tieng	32	4	12.50	0.006- 0.244	21	1	4.76	- 0.048- 0.143
Di An	32	0	0.00	0	25	0	0.00	0
Thu Dau Mot	47	0	0.00	0	41	0	0.00	0
<b>Total</b>	<b>186</b>	<b>9</b>	<b>4.84</b>	<b>0.017- 0.079</b>	<b>140</b>	<b>5</b>	<b>3.57</b>	<b>0.005- 0.067</b>

Table 19. The rate of mix-infection of STH of SAC in Binh Duong

Districts	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Bac Tan Uyen	4	4	100.00	0	0.00	0	0.00
Bau Bang	5	5	100.00	0	0.00	0	0.00
Dau Tieng	5	5	100.00	0	0.00	0	0.00
Di An	0	0	0.00	0	0.00	0	0.00
Thu Dau Mot	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>14</b>	<b>14</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 20. The rate of mix-infection of STH of SAC in Binh Duong province

Districts	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Bac Tan Uyen	51	4	7.84	0	0.00	0	0.00
Bau Bang	77	5	6.49	0	0.00	0	0.00
Dau Tieng	53	5	9.43	0	0.00	0	0.00
Di An	57	0	0.00	0	0.00	0	0.00
Thu Dau Mot	88	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>326</b>	<b>14</b>	<b>4.29</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

### 3.3. THE RESULTS OF THE STH SURVEY IN BINH THUAN CITY

Data analysis of fecal examination for primary school children.

Table 1: Stool sample collection process

Province	Date	District	No. Emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Binh Thuan	06/5/2016	Bac Binh	80	65	0
	09/5/2016	Tuy Phong	80	61	0
	10/5/2016	Tanh Linh	80	50	0
	11/5/2016	Ham Thuan Bac	80	50	0
	12/5/2016	Ham Thuan Nam	80	58	0
	<b>Total</b>			<b>400</b>	<b>284</b>

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
Bac Binh	65	22.89
Tuy Phong	61	21.48
Tanh Linh	50	17.60
Ham Thuan Bac	50	17.60
Ham Thuan Nam	58	20.43
<b>Total</b>	<b>284</b>	<b>100.0</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	133	46.83
4	127	44.72
5	24	8.45
<b>Total</b>	<b>284</b>	<b>100.0</b>

Table 4: General helminth infection rate of by districts.

District	No samples	No. General STH infection	Percent (%)	95 % CI
Bac Binh	65	5	7.69	0.010-0.143
Tuy Phong	61	1	1.64	-0.016-0.049
Tanh Linh	50	3	6.00	-0.008-0.128
Ham Thuan Bac	50	21	42.00	0.278-0.562
Ham Thuan Nam	58	19	32.76	0.203-0.452
<b>Total</b>	<b>284</b>	<b>49</b>	<b>17.25</b>	<b>0.128-0.217</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Bac Binh	65	0	0.00	0	0.00	5	7.69	5	7.69
Tuy Phong	61	0	0.00	0	0.00	1	1.64	1	1.64
Tanh Linh	50	1	2.00	0	0.00	2	4.00	3	6.00
Ham Thuan Bac	50	0	0.00	0	0.00	21	42.00	21	42.00
Ham Thuan Nam	58	0	0.00	0	0.00	19	32.76	19	32.76
<b>Total</b>	<b>284</b>	<b>1</b>	<b>0.35</b>	<b>0</b>	<b>0.00</b>	<b>48</b>	<b>16.90</b>	<b>49</b>	<b>17.25</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Bac Binh	5	0	0.00	0	0.00	0	0.00
Tuy Phong	1	0	0.00	0	0.00	0	0.00
Tanh Linh	3	1	33.33	0	0.00	0	0.00
Ham Thuan Bac	21	0	0.00	0	0.00	0	0.00
Ham Thuan Nam	19	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>49</b>	<b>1</b>	<b>2.04</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Bac Binh	65	0	0.00	0	0.00	0	0.00
Tuy Phong	61	0	0.00	0	0.00	0	0.00
Tanh Linh	50	1	2.00	0	0.00	0	0.00
Ham	50	0	0.00	0	0.00	0	0.00

Thuan Bac							
Ham Thuan Nam	58	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>284</b>	<b>1</b>	<b>0.35</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Bac Binh	0	0	0	0	0	0	0	0
Tuy Phong	0	0	0	0	0	0	0	0
Tanh Linh	1	3012	0	0	0	0	1	3012
Ham Thuan Bac	0	0	0	0	0	0	0	0
Ham Thuan Nam	0	0	0	0	0	0	0	0
<b>Total</b>	<b>1</b>	<b>3012</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>3012</b>

Table 9: Intensity of Trichuris infection by district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Bac Binh	0	0	0.00	0	0.00	0	0.00
Tuy Phong	0	0	0.00	0	0.00	0	0.00
Tanh Linh	0	0	0.00	0	0.00	0	0.00
Ham Thuan Bac	0	0	0.00	0	0.00	0	0.00
Ham Thuan Nam	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 10: Intensity of Trichuris infection by district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Bac Binh	65	0	0.00	0	0.00	0	0.00
Tuy Phong	61	0	0.00	0	0.00	0	0.00
Tanh Linh	50	0	0.00	0	0.00	0	0.00

Ham Thuan Bac	50	0	0.00	0	0.00	0	0.00
Ham Thuan Nam	58	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>284</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Bac Binh	0	0	0	0	0	0	0	0
Tuy Phong	0	0	0	0	0	0	0	0
Tanh Linh	0	0	0	0	0	0	0	0
Ham Thuan Bac	0	0	0	0	0	0	0	0
Ham Thuan Nam	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 12: Intensity of Hookworm infection according to District

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Bac Binh	5	4	80.00	1	20.00	0	0.00
Tuy Phong	1	1	100.00	0	0.00	0	0.00
Tanh Linh	2	2	100.00	0	0.00	0	0.00
Ham Thuan Bac	21	20	95.24	0	0.00	1	4.76
Ham Thuan Nam	19	18	94.74	0	0.00	1	5.26
<b>Total</b>	<b>48</b>	<b>45</b>	<b>93.75</b>	<b>1</b>	<b>2.08</b>	<b>2</b>	<b>4.17</b>

Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Bac Binh	65	4	6.15	1	1.54	0	0.00
Tuy Phong	61	1	1.64	0	0.00	0	0.00

Tanh Linh	50	2	4.00	0	0.00	0	0.00
Ham Thuan Bac	50	20	40.00	0	0.00	1	2.00
Ham Thuan Nam	58	18	31.03	0	0.00	1	1.72
<b>Total</b>	<b>284</b>	<b>45</b>	<b>15.85</b>	<b>1</b>	<b>0.35</b>	<b>2</b>	<b>0.70</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Bac Binh	4	282 $\pm$ 142.79	1	2,820	0	0	5	789.6 $\pm$ 519.5
Tuy Phong	1	108	0	0	0	0	1	108
Tanh Linh	2	318 $\pm$ 174	0	0	0	0	2	318 $\pm$ 174
Ham Thuan Bac	20	310.2 $\pm$ 87.96	0	0	1	6.648	21	612 $\pm$ 313.18
Ham Thuan Nam	18	344.67 $\pm$ 76.6	0	0	1	7536	19	723.16 $\pm$ 385.37
<b>Total</b>	<b>45</b>	<b>317.33<math>\pm</math> 50.77</b>	<b>1</b>	<b>2820</b>	<b>2</b>	<b>7092<math>\pm</math> 444</b>	<b>48</b>	<b>651.75<math>\pm</math> 208.62</b>

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Bac Binh	30	0	0.00	35	0	0.00
Tuy Phong	26	0	0.00	35	0	0.00
Tanh Linh	23	0	0.00	27	1	3.70
Ham Thuan Bac	19	0	0.00	31	0	0.00
Ham Thuan Nam	28	0	0.00	30	0	0.00
<b>Total</b>	<b>126</b>	<b>0</b>	<b>0.00</b>	<b>158</b>	<b>1</b>	<b>0.63</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No.	% (+)	n	No.	% (+)

		(+)			(+)	
Bac Binh	30	0	0.00	35	0	0.00
Tuy Phong	26	0	0.00	35	0	0.00
Tanh Linh	23	0	0.00	27	0	0.00
Ham Thuan Bac	19	0	0.00	31	0	0.00
Ham Thuan Nam	28	0	0.00	30	0	0.00
<b>Total</b>	<b>126</b>	<b>0</b>	<b>0.00</b>	<b>158</b>	<b>0</b>	<b>0.00</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Bac Binh	30	1	3.33	35	4	11.43
Tuy Phong	26	1	3.85	35	0	0.00
Tanh Linh	23	1	4.35	27	1	3.70
Ham Thuan Bac	19	9	47.37	31	12	38.71
Ham Thuan Nam	28	14	50.00	30	5	16.67
<b>Total</b>	<b>126</b>	<b>26</b>	<b>20.63</b>	<b>158</b>	<b>22</b>	<b>13.92</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Bac Binh	30	1	3.33	35	4	11.43
Tuy Phong	26	1	3.85	35	0	0.00
Tanh Linh	23	1	4.35	27	2	7.41
Ham Thuan Bac	19	9	47.37	31	12	38.71
Ham Thuan Nam	28	14	50.00	30	5	16.67
<b>Total</b>	<b>126</b>	<b>26</b>	<b>20.63</b>	<b>158</b>	<b>23</b>	<b>14.56</b>



Table 19. The rate of mix-infection of STH of SAC in Binh Thuan

Distrits	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Bac Binh	5	5	100.00	0	0.00	0	0.00
Tuy Phong	1	1	100.00	0	0.00	0	0.00
Tanh Linh	3	3	100.00	0	0.00	0	0.00
Ham Thuan Bac	21	21	100.00	0	0.00	0	0.00
Ham Thuan Nam	19	19	100.00	0	0.00	0	0.00
<b>Total</b>	<b>49</b>	<b>49</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 20. The rate of mix-infection of STH of SAC in Binh Thuan

Distrits	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Bac Binh	65	5	7.69	0	0.00	0	0.00
Tuy Phong	61	1	1.64	0	0.00	0	0.00
Tanh Linh	50	3	6.00	0	0.00	0	0.00
Ham Thuan Bac	50	21	42.00	0	0.00	0	0.00
Ham Thuan Nam	58	19	32.76	0	0.00	0	0.00
<b>Total</b>	<b>284</b>	<b>49</b>	<b>17.25</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

### 3.5. THE RESULTS OF THE STH SURVEY IN CANTHO PROVINCE

Data analysis of fecal examination for primary school student: Preliminary results

Table 1: Stool sample collection process

Province	Date	District	No. emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
<b>CAN THO</b>	12/4/2016	Vinh Thanh	80	52	0
	13/4/2016	Thot Not	80	58	0
	14/4/2016	Co Do	80	58	0
	15/4/2016	O Mon	80	65	0
	19/4/2016	Ninh Kieu	80	53	0
	<b>Total</b>			<b>400</b>	<b>286</b>

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
Vinh Thanh	52	18.2
Thot Not	58	20.3
Co Do	58	20.3
O Mon	65	22.7
Ninh Kieu	53	18.5
<b>Total</b>	<b>286</b>	<b>100.0</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	226	79.02
4	60	20.98
5	0	0
<b>Total</b>	<b>286</b>	<b>100.0</b>

Table 4: General helminth infection rate of by districts.

District	No. sample	No. General infection	Percent	95% CI
Vinh Thanh	52	2	3.85	-0.016-0.092
Thot Not	58	1	1.72	-0.017-0.051
Co do	58	1	1.72	-0.017-0.051
O Mon	65	0	0.00	0
Ninh Kieu	53	0	0.00	0
<b>Total</b>	<b>286</b>	<b>4</b>	<b>1.40</b>	<b>0.0002-0.0277</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vinh Thanh	52	0	0.00	1	1.92	1	1.92	2	3.85
Thot Not	58	0	0.00	1	1.72	0	0.00	1	1.72
Co do	58	0	0.00	1	1.72	0	0.00	1	1.72
O Mon	65	0	0.00	0	0.00	0	0.00	0	0.00
Ninh Kieu	53	0	0.00	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>286</b>	<b>0</b>	<b>0.00</b>	<b>3</b>	<b>1.05</b>	<b>1</b>	<b>0.35</b>	<b>4</b>	<b>1.40</b>



Table 9: Intensity of Trichuris infection by district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vinh Thanh	1	1	100.00	0	0.00	0	0.00
Thot Not	1	1	100.00	0	0.00	0	0.00
Co do	1	1	100.00	0	0.00	0	0.00
O Mon	0	0	0.00	0	0.00	0	0.00
Ninh Kieu	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>3</b>	<b>3</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 10: Intensity of Trichuris infection by district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vinh Thanh	52	1	1.92	0	0.00	0	0.00
Thot Not	58	1	1.72	0	0.00	0	0.00
Co do	58	1	1.72	0	0.00	0	0.00
O Mon	65	0	0.00	0	0.00	0	0.00
Ninh Kieu	53	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>286</b>	<b>3</b>	<b>1.05</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Vinh Thanh	1	12	0	0	0	0	1	12
Thot Not	1	12	0	0	0	0	1	12
Co do	1	12	0	0	0	0	1	12
O Mon	0	0	0	0	0	0	0	0
Ninh Kieu	0	0	0	0	0	0	0	0
<b>Total</b>	<b>3</b>	<b>28<math>\pm</math>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>28<math>\pm</math>16</b>

Table 12: Intensity of Hookworm infection according to District

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vinh Thanh	1	1	100.00	0	0	0	0
Thot Not	0	0	0	0	0	0	0
Co do	0	0	0	0	0	0	0
O Mon	0	0	0	0	0	0	0
Ninh Kieu	0	0	0	0	0	0	0
<b>Total</b>	<b>1</b>	<b>1</b>	<b>100.00</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vinh Thanh	52	1	1.92	0	0	0	0
Thot Not	58	0	0.00	0	0	0	0
Co do	58	0	0.00	0	0	0	0
O Mon	65	0	0.00	0	0	0	0
Ninh Kieu	53	0	0.00	0	0	0	0
<b>Total</b>	<b>286</b>	<b>1</b>	<b>0.35</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Vinh Thanh	1	24	0	0	0	0	1	24
Thot Not	0	0	0	0	0	0	0	0
Co do	0	0	0	0	0	0	0	0
O Mon	0	0	0	0	0	0	0	0
Ninh Kieu	0	0	0	0	0	0	0	0
<b>Total</b>	<b>1</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>24</b>

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Vinh Thanh	26	0	0	26	0	0
Thot Not	34	0	0	24	0	0
Co do	37	0	0	21	0	0
O Mon	44	0	0	21	0	0
Ninh Kieu	33	0	0	20	0	0
<b>Total</b>	<b>174</b>	<b>0</b>	<b>0</b>	<b>112</b>	<b>0</b>	<b>0</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Vinh Thanh	26	1	3.85	26	0	0.00
Thot Not	34	1	2.94	24	0	0.00
Co do	37	1	2.70	21	0	0.00
O Mon	44	0	0.00	21	0	0.00
Ninh Kieu	33	0	0.00	20	0	0.00
<b>Total</b>	<b>174</b>	<b>3</b>	<b>1.72</b>	<b>112</b>	<b>0</b>	<b>0.00</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Vinh Thanh	26	0	0.00	26	1	3.85
Thot Not	34	0	0.00	24	0	0.00
Co do	37	0	0.00	21	0	0.00
O Mon	44	0	0.00	21	0	0.00
Ninh Kieu	33	0	0.00	20	0	0.00
<b>Total</b>	<b>174</b>	<b>0</b>	<b>0.00</b>	<b>112</b>	<b>1</b>	<b>0.89</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Vinh Thanh	26	1	3.85	26	1	3.85
Thot Not	34	1	2.94	24	0	0.00
Co do	37	1	2.70	21	0	0.00
O Mon	44	0	0.00	21	0	0.00
Ninh Kieu	33	0	0.00	20	0	0.00
<b>Total</b>	<b>174</b>	<b>3</b>	<b>1.72</b>	<b>112</b>	<b>1</b>	<b>0.89</b>

Table 19. The rate of mix-infection of STH of SAC in Can Tho city

Districts	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Vinh Thanh	2	2	100.00	0	0	0	0
Thot Not	1	1	100.00	0	0	0	0
Co do	1	1	100.00	0	0	0	0
O Mon	0	0	0.00	0	0	0	0
Ninh Kieu	0	0	0.00	0	0	0	0
<b>Total</b>	<b>4</b>	<b>4</b>	<b>100.00</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 20. The rate of mix-infection of STH of SAC in .....

Districts	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Vinh Thanh	52	2	3.85	0	0	0	0
Thot Not	58	1	1.72	0	0	0	0
Co do	58	1	1.72	0	0	0	0
O Mon	65	0	0	0	0	0	0
Ninh Kieu	53	0	0	0	0	0	0
<b>Total</b>	<b>286</b>	<b>4</b>	<b>1.4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### 3.6. THE RESULTS OF THE STH SURVEY IN DANANG PROVINCE

Data analysis of fecal examination for primary school student: Preliminary results

Table 1: Stool sample collection process

Province	Date	District	No. Emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Đà Nẵng	9/5/2016	Son Tra	80	52	0
	10/5/2016	Ngu Hanh Son	80	50	0
	11-12/5/2016	Lien Chieu	80	51	0
	12-13/5/2016	Cam Le	80	50	0
	14,16/5/2016	Hoa Vang	80	52	0
<b>Total</b>			<b>400</b>	<b>255</b>	<b>0</b>

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
Son Tra	52	20.39
Ngu Hanh Son	50	19.61
Lien Chieu	51	20.00
Cam Le	50	19.61
Hoa Vang	52	20.39
<b>Total</b>	<b>255</b>	<b>100.0</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	246	96.47
4	09	3.53
5	0	0.00
<b>Total</b>	<b>255</b>	<b>100</b>

Table 4: General helminthinfestation rate of by districts.

District	No samples	No. General STH infection	Percent (%)	95 % CI
Son Tra	52	0	0	0
Ngu Hanh Son	50	1	2	-0.016
Lien Chieu	51	0	0	0



Cam Le	50	0	0	0
Hoa Vang	52	2	3.85	-0.020-0.060
<b>Total</b>	<b>255</b>	<b>3</b>	<b>1.18</b>	<b>-0.002-0.025</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Son Tra	52	0	0	0	0	0	0	0	0
Ngu Hanh Son	50	0	0	0	0	1	2.0	1	2.0
Lien Chieu	51	0	0	0	0	0	0	0	0
Cam Le	50	0	0	0	0	0	0	0	0
Hoa Vang	52	0	0	0	0	2	3.85	2	3.85
<b>Total</b>	<b>255</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>1.18</b>	<b>3</b>	<b>1.18</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Son Tra	0	0	0	0	0	0	0
Ngu Hanh Son	0	0	0	0	0	0	0
Lien Chieu	0	0	0	0	0	0	0
Cam Le	0	0	0	0	0	0	0
Hoa Vang	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Son Tra	52	0	0	0	0	0	0
Ngu Hanh Son	50	0	0	0	0	0	0

Lien Chieu	51	0	0	0	0	0	0
Cam Le	50	0	0	0	0	0	0
Hoa Vang	52	0	0	0	0	0	0
<b>Total</b>	<b>255</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Son Tra	0	0	0	0	0	0	0	0
Ngu Hanh Son	0	0	0	0	0	0	0	0
Lien Chieu	0	0	0	0	0	0	0	0
Cam Le	0	0	0	0	0	0	0	0
Hoa Vang	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 9: Intensity of Trichuris infection by district

District	No. sample	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Son Tra	0	0	0	0	0	0	0
Ngu Hanh Son	0	0	0	0	0	0	0
Lien Chieu	0	0	0	0	0	0	0
Cam Le	0	0	0	0	0	0	0
Hoa Vang	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 10: Intensity of Trichuris infection by district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Son Tra	52	0	0	0	0	0	0
Ngu Hanh	50	0	0	0	0	0	0

Son							
Lien Chieu	51	0	0	0	0	0	0
Cam Le	50	0	0	0	0	0	0
Hoa Vang	52	0	0	0	0	0	0
<b>Total</b>	<b>255</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Son Tra	0	0	0	0	0	0	0	0
Ngu Hanh Son	0	0	0	0	0	0	0	0
Lien Chieu	0	0	0	0	0	0	0	0
Cam Le	0	0	0	0	0	0	0	0
Hoa Vang	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 12: Intensity of Hookworm infection according to District

Provinces	No. sample	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Son Tra	0	0	0	0	0	0	0
Ngu Hanh Son	1	1	100	0	0	0	0
Lien Chieu	0	0	0	0	0	0	0
Cam Le	0	0	0	0	0	0	0
Hoa Vang	2	2	100	0	0	0	0
<b>Total</b>	<b>3</b>	<b>3</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)

Son Tra	52	0	0	0	0	0	0
Ngu Hanh Son	50	1	2	0	0	0	0
Lien Chieu	51	0	0	0	0	0	0
Cam Le	50	0	0	0	0	0	0
Hoa Vang	52	2	3.85	0	0	0	0
<b>Total</b>	<b>255</b>	<b>3</b>	<b>1.18</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Son Tra	0	0	0	0	0	0	0	0
Ngu Hanh Son	1	36	0	0	0	0	1	36
Lien Chieu	0	0	0	0	0	0	0	0
Cam Le	0	0	0	0	0	0	0	0
Hoa Vang	2	72 $\pm$ 12	0	0	0	0	2	72 $\pm$ 12
<b>Total</b>	<b>3</b>	<b>60<math>\pm</math>13.85</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>60<math>\pm</math>13.85</b>

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Son Tra	32	0	0	20	0	0
Ngu Hanh Son	27	0	0	23	0	0
Lien Chieu	26	0	0	25	0	0
Cam Le	29	0	0	21	0	0
Hoa Vang	20	0	0	32	0	0
<b>Total</b>	<b>134</b>	<b>0</b>	<b>0</b>	<b>121</b>	<b>0</b>	<b>0</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys	Girls
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	n	No. (+)	% (+)	n	No. (+)	% (+)
Son Tra	32	0	0	20	0	0
Ngu Hanh Son	27	0	0	23	0	0
Lien Chieu	26	0	0	25	0	0
Cam Le	29	0	0	21	0	0
Hoa Vang	20	0	0	32	0	0
<b>Total</b>	<b>134</b>	<b>0</b>	<b>0</b>	<b>121</b>	<b>0</b>	<b>0</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Son Tra	32	0	0	20	0	0
Ngu Hanh Son	27	1	3.7	23	0	0
Lien Chieu	26	0	0	25	0	0
Cam Le	29	0	0	21	0	0
Hoa Vang	20	0	0	32	2	6.25
<b>Total</b>	<b>134</b>	<b>1</b>	<b>0.75</b>	<b>121</b>	<b>2</b>	<b>1.65</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Son Tra	32	0	0	20	0	0
Ngu Hanh Son	27	1	3.7	23	0	0
Lien Chieu	26	0	0	25	0	0
Cam Le	29	0	0	21	0	0
Hoa Vang	20	0	0	32	2	6.25
<b>Total</b>	<b>134</b>	<b>1</b>	<b>0.75</b>	<b>121</b>	<b>2</b>	<b>1.65</b>

Table 19. The rate of mix-infection of STH of SAC in Da Nang

Distrits	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Son Tra	0	0	0	0	0	0	0
Ngu Hanh Son	1	1	100	0	0	0	0
Lien Chieu	0	0	0	0	0	0	0
Cam Le	0	0	0	0	0	0	0
Hoa Vang	2	2	100	0	0	0	0
<b>Total</b>	<b>3</b>	<b>3</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 20. The rate of mix-infection of STH of SAC in Da Nang city

Distrits	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Son Tra	52	0	0	0	0	0	0
Ngu Hanh Son	50	1	2	0	0	0	0
Lien Chieu	51	0	0	0	0	0	0
Cam Le	50	0	0	0	0	0	0
Hoa Vang	52	2	3.85	0	0	0	0
<b>Total</b>	<b>255</b>	<b>3</b>	<b>1.18</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### 3.7. THE RESULTS OF THE STH SURVEY IN HANOI CITY

Data analysis of fecal examination for primary school children.

Table 1: Stool sample collection process

Province	Date	District	No. Emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Ha Noi	17/1/2016	Ba Vi	300		
	18/1/2016	Ba Vi		62	0
		My Duc	150		
	19/1/2016	My Duc		40	0
		Son Tay	250		
	20/1/2016	Son Tay		154	0
	21/1/2016	Ung Hoa	120		
	22/1/2016	Ung Hoa		55	4
23/1/2016	Thanh Oai	150			

	24/1/2016	Thanh Oai		76	0
	25/1/2016	My Duc		32	0
	<b>Total</b>		<b>970</b>	<b>419</b>	

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
My Duc	72	17.22
Son Tay	153	36.6
ThanhOai	76	18.18
UngHoa	55	13.16
Ba Vi	62	14.83
<b>Total</b>	<b>418</b>	<b>100</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	387	92.58
4	31	7.42
<b>Total</b>	<b>418</b>	<b>100</b>

Table 4: General helminth infection rate of by districts.

District	No samples	No. General STH infection	Percent (%)	95 % CI
My Duc	72	2	2.78	-0.011-0.067
Son Tay	153	8	5.23	0.016-0.087
ThanhOai	76	3	3.95	-0.005-0.084
UngHoa	55	1	1.82	0.018-0.054
Ba Vi	62	0	0.00	0
<b>Total</b>	<b>418</b>	<b>14</b>	<b>3.35</b>	<b>0.016-0.051</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
My Duc	72	0	0.00	2	2.78	0	0.00	2	2.78
Son Tay	153	1	0.65	8	5.23	0	0.00	9	5.88
ThanhOai	76	0	0.00	3	3.95	0	0.00	3	3.95
UngHoa	55	0	0.00	1	1.82	0	0.00	1	1.82
Ba Vi	62	0	0.00	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>418</b>	<b>1</b>	<b>0.24</b>	<b>14</b>	<b>3.35</b>	<b>0</b>	<b>0.00</b>	<b>15</b>	<b>3.59</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
My Duc	0	0	0.00	0	0.00	0	0.00
Son Tay	1	1	100.00	0	0.00	0	0.00
ThanhOai	0	0	0.00	0	0.00	0	0.00
UngHoa	0	0	0.00	0	0.00	0	0.00
Ba Vi	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>1</b>	<b>1</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
My Duc	72	0	0.00	0	0.00	0	0.00
Son Tay	153	1	0.65	0	0.00	0	0.00
ThanhOai	76	0	0.00	0	0.00	0	0.00
UngHoa	55	0	0.00	0	0.00	0	0.00
Ba Vi	62	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>418</b>	<b>1</b>	<b>0.24</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
My Duc	0	0	0	0	0	0	0	0
Son Tay	1	12	0	0	0	0	1	12
ThanhOai	0	0	0	0	0	0	0	0
UngHoa	0	0	0	0	0	0	0	0
Ba Vi	0	0	0	0	0	0	0	0
<b>Total</b>	<b>1</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>12</b>



Table 9: Intensity of Trichuris infection by district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
My Duc	2	2	100.00	0	0.00	0	0.00
Son Tay	8	8	100.00	0	0.00	0	0.00
ThanhOai	3	3	100.00	0	0.00	0	0.00
UngHoa	1	1	100.00	0	0.00	0	0.00
Ba Vi	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>14</b>	<b>14</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 10: Intensity of Trichuris infection by district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
My Duc	72	2	2.78	0	0.00	0	0.00
Son Tay	153	8	5.23	0	0.00	0	0.00
ThanhOai	76	3	3.95	0	0.00	0	0.00
UngHoa	55	1	1.82	0	0.00	0	0.00
Ba Vi	62	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>418</b>	<b>14</b>	<b>3.35</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
My Duc	2	36 $\pm$ 12	0	0	0	0	2	36 $\pm$ 12
Son Tay	8	162 $\pm$ 78	0	0	0	0	8	162 $\pm$ 78
ThanhOai	3	64 $\pm$ 10.58	0	0	0	0	3	64 $\pm$ 10.58
UngHoa	1	24	0	0	0	0	1	24
Ba Vi	0	0	0	0	0	0	0	0
<b>Total</b>	<b>14</b>	<b>113.14<math>\pm</math>46.16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>113.14<math>\pm</math>46.16</b>



Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
My Duc	38	0	0.00	34	0	0.00
Son Tay	79	0	0.00	74	1	1.35
ThanhOai	43	0	0.00	33	0	0.00
UngHoa	29	0	0.00	26	0	0.00
Ba Vi	32	0	0.00	30	0	0.00
<b>Total</b>	<b>221</b>	<b>0</b>	<b>0.00</b>	<b>197</b>	<b>1</b>	<b>0.51</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
My Duc	38	1	2.63	34	1	2.94
Son Tay	79	4	5.06	74	4	5.41
ThanhOai	43	2	4.65	33	1	3.03
UngHoa	29	0	0.00	26	1	3.85
Ba Vi	32	0	0.00	30	0	0.00
<b>Total</b>	<b>221</b>	<b>7</b>	<b>3.17</b>	<b>197</b>	<b>7</b>	<b>3.55</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
My Duc	38	0	0.00	34	0	0.00
Son Tay	79	0	0.00	74	0	0.00
ThanhOai	43	0	0.00	33	0	0.00
UngHoa	29	0	0.00	26	0	0.00
Ba Vi	32	0	0.00	30	0	0.00
<b>Total</b>	<b>221</b>	<b>0</b>	<b>0.00</b>	<b>197</b>	<b>0</b>	<b>0.00</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
My Duc	38	1	2.63	34	1	2.94

Son Tay	79	4	5.06	74	4	5.41
ThanhOai	43	2	4.65	33	1	3.03
UngHoa	29	0	0.00	26	1	3.85
Ba Vi	32	0	0.00	30	0	0.00
<b>Total</b>	<b>221</b>	<b>7</b>	<b>3.17</b>	<b>197</b>	<b>7</b>	<b>3.55</b>

Table 19. The rate of mix-infection of STH of SAC in Ha Noi

Distrits	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
My Duc	2	2	100.00	0	0.00	0	0.00
Son Tay	8	7	87.50	1	12.50	0	0.00
ThanhOai	3	3	100.00	0	0.00	0	0.00
UngHoa	1	1	100.00	0	0.00	0	0.00
Ba Vi	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>14</b>	<b>13</b>	<b>92.86</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 20. The rate of mix-infection of STH of SAC in Ha Noi

Distrits	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
My Duc	72	2	2.78	0	0.00	0	0.00
Son Tay	153	7	4.58	1	0.65	0	0.00
ThanhOai	76	3	3.95	0	0.00	0	0.00
UngHoa	55	1	1.82	0	0.00	0	0.00
Ba Vi	62	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>418</b>	<b>13</b>	<b>3.11</b>	<b>1</b>	<b>0.24</b>	<b>0</b>	<b>0.00</b>

### 3.8. THE RESULTS OF THE STH SURVEY IN HAIDUONG CITY

Data analysis of fecal examination for primary school student: Preliminary results

Table 1: Stool sample collection process

Province	Date	District	No. emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Hai Duong	17/01/2016	Gia Loc	120		
	18/01/2016	Gia Loc		50	

		Thanh Ha	150		
19/01/2016		Thanh Ha		51	0
		Kim Thanh	200		
20/01/2016		Kim Thanh		68	0
		Nam Sach	150		
21/01/2016		Nam Sach		34	0
		Nam Sach	70		
22/01/2016		Nam Sach		16	0
		Cam Giang	165		
23/01/2016		Cam Giang		39	0
		Cam Giang	100		
24/01/2016		Cam Giang		20	0
<b>Total</b>			<b>955</b>	<b>278</b>	

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
Cam Giang	59	21.3
GiaLoc	49	17.69
Kim Thanh	68	24.55
Nam Sach	50	18.05
Thanh Ha	51	18.41
<b>Total</b>	<b>277</b>	<b>100.0</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	274	98.82
4	3	1.08
5	0	0.0
<b>Total</b>	<b>277</b>	<b>100.0</b>

Table 4: General helminth infection rate of by districts.

District	No samples	No. General STH infection	Percent (%)	95 % CI
Cam Giang	59	5	8.47	0.011-0.158
GiaLoc	49	0	0.00	0
Kim Thanh	68	2	2.94	-0.011-0.071
Nam Sach	50	0	0.00	0
Thanh Ha	51	1	1.96	-0.019-0.059
<b>Total</b>	<b>277</b>	<b>8</b>	<b>2.89</b>	<b>0.009-0.048</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Cam Giang	59	1	1.69	4	6.78	0	0.00	5	8.47
GiaLoc	49	0	0.00	0	0.00	0	0.00	0	0.00

Kim Thanh	68	0	0.00	2	2.94	0	0.00	2	2.94
Nam Sach	50	0	0.00	0	0.00	0	0.00	0	0.00
Thanh Ha	51	0	0.00	1	1.96	0	0.00	1	1.96
<b>Total</b>	<b>277</b>	<b>1</b>	<b>0.36</b>	<b>7</b>	<b>2.53</b>	<b>0</b>	<b>0.00</b>	<b>8</b>	<b>2.89</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Cam Giang	1	1	100.00	0	0.00	0	0.00
GiaLoc	0	0	0.00	0	0.00	0	0.00
Kim Thanh	0	0	0.00	0	0.00	0	0.00
Nam Sach	0	0	0.00	0	0.00	0	0.00
Thanh Ha	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>1</b>	<b>1</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Cam Giang	59	1	1.69	0	0.00	0	0.00
GiaLoc	49	0	0.00	0	0.00	0	0.00
Kim Thanh	68	0	0.00	0	0.00	0	0.00
Nam Sach	50	0	0.00	0	0.00	0	0.00
Thanh Ha	51	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>277</b>	<b>1</b>	<b>0.36</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Cam Giang	1	108	0	0	0	0	1	108
GiaLoc	0	0	0	0	0	0	0	0
Kim Thanh	0	0	0	0	0	0	0	0
Nam Sach	0	0	0	0	0	0	0	0
Thanh Ha	0	0	0	0	0	0	0	0
<b>Total</b>	<b>1</b>	<b>108</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>108</b>

Table 9: Intensity of Trichuris infection by district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Cam Giang	4	4	100.00	0	0.00	0	0.00
GiaLoc	0	0	0.00	0	0.00	0	0.00
Kim Thanh	2	2	100.00	0	0.00	0	0.00
Nam Sach	0	0	0.00	0	0.00	0	0.00
Thanh Ha	1	1	100.00	0	0.00	0	0.00
<b>Total</b>	<b>7</b>	<b>7</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 10: Intensity of Trichuris infection by district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Cam Giang	59	4	6.78	0	0.00	0	0.00
GiaLoc	49	0	0.00	0	0.00	0	0.00
Kim Thanh	68	2	2.94	0	0.00	0	0.00
Nam Sach	50	0	0.00	0	0.00	0	0.00
Thanh Ha	51	1	1.96	0	0.00	0	0.00
<b>Total</b>	<b>277</b>	<b>7</b>	<b>2.53</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Cam Giang	4	117 $\pm$ 55.29	0	0	0	0	4	117 $\pm$ 55.29
GiaLoc	0	0	0	0	0	0	0	0
Kim Thanh	2	558 $\pm$ 258	0	0	0	0	2	558 $\pm$ 258
Nam Sach	0	0	0	0	0	0	0	0
Thanh Ha	1	264	0	0	0	0	1	264
<b>Total</b>	<b>7</b>	<b>264<math>\pm</math>101.08</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>264<math>\pm</math>101.08</b>

Table 12: Intensity of Hookworm infection according to District

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Cam Giang	0	0	0.00	0	0.00	0	0.00
GiaLoc	0	0	0.00	0	0.00	0	0.00
Kim Thanh	0	0	0.00	0	0.00	0	0.00
Nam Sach	0	0	0.00	0	0.00	0	0.00
Thanh Ha	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Cam Giang	59	0	0.00	0	0.00	0	0.00
GiaLoc	49	0	0.00	0	0.00	0	0.00
Kim Thanh	68	0	0.00	0	0.00	0	0.00
Nam Sach	50	0	0.00	0	0.00	0	0.00
Thanh Ha	51	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>277</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Cam Giang	0	0	0	0	0	0	0	0
GiaLoc	0	0	0	0	0	0	0	0
Kim Thanh	0	0	0	0	0	0	0	0
Nam Sach	0	0	0	0	0	0	0	0
Thanh Ha	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Cam Giang	34	1	2.94	25	0	0.00



GiaLoc	28	0	0.00	21	0	0.00
Kim Thanh	36	0	0.00	32	0	0.00
Nam Sach	24	0	0.00	26	0	0.00
Thanh Ha	25	0	0.00	26	0	0.00
<b>Total</b>	<b>147</b>	<b>1</b>	<b>0.68</b>	<b>130</b>	<b>0</b>	<b>0.00</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Cam Giang	34	3	8.82	25	1	4.00
GiaLoc	28	0	0.00	21	0	0.00
Kim Thanh	36	1	2.78	32	1	3.13
Nam Sach	24	0	0.00	26	0	0.00
Thanh Ha	25	0	0.00	26	1	3.85
<b>Total</b>	<b>147</b>	<b>4</b>	<b>2.72</b>	<b>130</b>	<b>3</b>	<b>2.31</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Cam Giang	34	0	0.00	25	0	0.00
GiaLoc	28	0	0.00	21	0	0.00
Kim Thanh	36	0	0.00	32	0	0.00
Nam Sach	24	0	0.00	26	0	0.00
Thanh Ha	25	0	0.00	26	0	0.00
<b>Total</b>	<b>147</b>	<b>0</b>	<b>0.00</b>	<b>130</b>	<b>0</b>	<b>0.00</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Cam Giang	34	1	2.94	25	4	16.00
GiaLoc	28	1	3.57	21	0	0.00
Kim Thanh	36	1	2.78	32	2	6.25
Nam Sach	24	9	37.50	26	12	46.15
Thanh Ha	25	14	56.00	26	5	19.23
<b>Total</b>	<b>147</b>	<b>26</b>	<b>17.69</b>	<b>130</b>	<b>23</b>	<b>17.69</b>

Table 19. The rate of mix-infection of STH of SAC in Hai Duong

Distrits	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Cam Giang	5	5	100.00	0	0.00	0	0.00
GiaLoc	0	0	0.00	0	0.00	0	0.00
Kim Thanh	2	2	100.00	0	0.00	0	0.00
Nam Sach	0	0	0.00	0	0.00	0	0.00
Thanh Ha	1	1	100.00	0	0.00	0	0.00
<b>Total</b>	<b>8</b>	<b>8</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 20. The rate of mix-infection of STH of SAC in Hai Duong province

Distrits	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Cam Giang	59	5	8.47	0	0.00	0	0.00
GiaLoc	49	0	0.00	0	0.00	0	0.00
Kim Thanh	68	2	2.94	0	0.00	0	0.00
Nam Sach	50	0	0.00	0	0.00	0	0.00
Thanh Ha	51	1	1.96	0	0.00	0	0.00
<b>Total</b>	<b>277</b>	<b>8</b>	<b>2.89</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

### 3.9. THE RESULTS OF THE STH SURVEY IN HAIPHONG PROVINCE

Data analysis of fecal examination for primary school student: Preliminary results

Table 1: Stool sample collection process

Province	Date	District	No. emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Hai Phong	17/1/2016	Le Chan	230		
	18/1/2016	Le Chan		89	0
		Thuy Nguyen	185		
	19/1/2016	Thuy Nguyen		73	5
		Kien Thuy	128		
	20/1/2016	Kien Thuy		113	0
		Kien An	117		
	21/1/2016	Kien An		32	2
		Kien An	70		
22/1/2016	Kien An		18	0	

		Cat Hai	50		
	23/1/2016	Cat Hai		31	0
		Cat Hai	30		
	24/1/2016	Cat Hai		10	0
		<b>Total</b>	<b>810</b>	<b>366</b>	<b>0</b>

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
Cat Hai	41	11.36
Kien An	50	13.85
KienThuy	113	31.3
Le Chan	89	24.65
Thuy Nguyen	68	18.84
<b>Total</b>	<b>361</b>	<b>100.0</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	340	94.18
4	11	3.05
5	10	2.77
<b>Total</b>	<b>361</b>	<b>100.0</b>

Table 4: General helminth infection rate of by districts.

District	No samples	No. General STH infection	Percent (%)	95 % CI
Le Chan	89	2	2.25	-0.009-0.054
Thuy Nguyen	68	11	16.18	0.072-0.252
Kien Thuy	113	13	11.50	0.055-0.174
Kien An	50	8	16.00	0.055-0.265
Cat Hai	41	2	4.88	-0.020-0.118
<b>Total</b>	<b>361</b>	<b>36</b>	<b>9.97</b>	<b>0.069-0.131</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Le Chan	89	0	0.00	1	1.12	1	1.12	2	2.25
Thuy Nguyen	68	4	5.88	3	4.41	4	5.88	11	16.18
Kien Thuy	113	2	1.77	6	5.31	6	5.31	14	12.39
Kien An	50	0	0.00	7	14.00	1	2.00	8	16.00
Cat Hai	41	0	0.00	2	4.88	0	0.00	2	4.88
<b>Total</b>	<b>361</b>	<b>6</b>	<b>1.66</b>	<b>19</b>	<b>5.26</b>	<b>12</b>	<b>3.32</b>	<b>37</b>	<b>10.25</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Le Chan	0	0	0.00	0	0.00	0	0.00
Thuy Nguyen	4	4	100.00	0	0.00	0	0.00
Kien Thuy	2	2	100.00	0	0.00	0	0.00
Kien An	0	0	0.00	0	0.00	0	0.00
Cat Hai	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>6</b>	<b>6</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Le Chan	89	0	0.00	0	0.00	0	0.00
Thuy Nguyen	68	4	5.88	0	0.00	0	0.00
Kien Thuy	113	2	1.77	0	0.00	0	0.00
Kien An	50	0	0.00	0	0.00	0	0.00
Cat Hai	41	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>361</b>	<b>6</b>	<b>1.66</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Le Chan	0	0	0	0	0	0	0	0
Thuy Nguyen	4	54 $\pm$ 18.65	0	0	0	0	4	54 $\pm$ 18.65
Kien Thuy	2	66 $\pm$ 18	0	0	0	0	0	66 $\pm$ 18
Kien An	0	0	0	0	0	0	0	0
Cat Hai	0	0	0	0	0	0	0	0
<b>Total</b>	<b>6</b>	<b>58<math>\pm</math>12.93</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>58<math>\pm</math>12.93</b>

Table 9: Intensity of Trichuris infection by district

Distict	No.	Light infection	Medium infection	Heavy infection
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	sample (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Le Chan	1	1	100.00	0	0.00	0	0.00
Thuy Nguyen	3	3	100.00	0	0.00	0	0.00
Kien Thuy	6	6	100.00	0	0.00	0	0.00
Kien An	7	6	0.00	1	14.29	0	0.00
Cat Hai	2	1	0.00	1	50.00	0	0.00
<b>Total</b>	<b>19</b>	<b>17</b>	<b>89.47</b>	<b>2</b>	<b>10.53</b>	<b>0</b>	<b>0.00</b>

Table 10: Intensity of Trichuris infection by district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Le Chan	89	1	1.12	0	0.00	0	0.00
Thuy Nguyen	68	3	4.41	0	0.00	0	0.00
Kien Thuy	113	6	5.31	0	0.00	0	0.00
Kien An	50	6	12.00	1	2.00	0	0.00
Cat Hai	41	1	2.44	1	2.44	0	0.00
<b>Total</b>	<b>361</b>	<b>17</b>	<b>4.71</b>	<b>2</b>	<b>0.55</b>	<b>0</b>	<b>0.00</b>

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Le Chan	1	156	0	0	0	0	1	156
Thuy Nguyen	3	184 $\pm$ 79.69	0	0	0	0	3	184 $\pm$ 79.69
Kien Thuy	6	122 $\pm$ 30.58	0	0	0	0	6	122 $\pm$ 30.58
Kien An	6	214 $\pm$ 85.89	1	2040	0	0	7	474.86 $\pm$ 270.77
Cat Hai	1	24	1	1464	0	0	2	744 $\pm$ 720
<b>Total</b>	<b>17</b>	<b>161<math>\pm</math>35.03</b>	<b>2</b>	<b>1572<math>\pm</math>288</b>	<b>0</b>	<b>0</b>	<b>19</b>	<b>329.05<math>\pm</math>121.22</b>

Table 12: Intensity of Hookworm infection according to District

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Le Chan	1	1	100.00	0	0.00	0	0.00

Thuy Nguyen	4	4	100.00	0	0.00	0	0.00
Kien Thuy	6	6	100.00	0	0.00	0	0.00
Kien An	1	1	100.00	0	0.00	0	0.00
Cat Hai	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>12</b>	<b>12</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Le Chan	89	1	1.12	0	0.00	0	0.00
Thuy Nguyen	68	4	5.88	0	0.00	0	0.00
Kien Thuy	113	6	5.31	0	0.00	0	0.00
Kien An	50	1	2.00	0	0.00	0	0.00
Cat Hai	41	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>361</b>	<b>12</b>	<b>3.32</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Le Chan	1	96	0	0	0	0	1	96
Thuy Nguyen	4	258 $\pm$ 164.86	0	0	0	0	4	258 $\pm$ 164.86
Kien Thuy	6	64 $\pm$ 15.69	0	0	0	0	6	64 $\pm$ 15.69
Kien An	1	48	0	0	0	0	1	48
Cat Hai	0	0	0	0	0	0	0	0
Total	12	130 $\pm$ 57.28	0	0	0	0	12	130 $\pm$ 57.28

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Le Chan	46	0	0.00	43	0	0.00
Thuy Nguyen	32	1	3.13	36	3	8.33
Kien Thuy	60	0	0.00	53	2	3.77
Kien An	24	0	0.00	26	0	0.00

Cat Hai	20	0	0.00	21	0	0.00
<b>Total</b>	<b>182</b>	<b>1</b>	<b>0.55</b>	<b>179</b>	<b>5</b>	<b>2.79</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Le Chan	46	1	2.17	43	0	0.00
Thuy Nguyen	32	2	6.25	36	1	2.78
Kien Thuy	60	3	5.00	53	3	5.66
Kien An	24	1	4.17	26	6	23.08
Cat Hai	20	1	5.00	21	1	4.76
<b>Total</b>	<b>182</b>	<b>8</b>	<b>4.40</b>	<b>179</b>	<b>11</b>	<b>6.15</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Le Chan	46	1	2.17	43	0	0.00
Thuy Nguyen	32	4	12.50	36	0	0.00
Kien Thuy	60	1	1.67	53	5	9.43
Kien An	24	1	4.17	26	0	0.00
Cat Hai	20	0	0.00	21	0	0.00
<b>Total</b>	<b>182</b>	<b>7</b>	<b>3.85</b>	<b>179</b>	<b>5</b>	<b>2.79</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Le Chan	46	2	4.35	43	0	0.00
Thuy Nguyen	32	7	21.88	36	4	11.11
Kien Thuy	60	4	6.67	53	9	16.98
Kien An	24	2	8.33	26	6	23.08
Cat Hai	20	1	5.00	21	1	4.76
<b>Total</b>	<b>182</b>	<b>16</b>	<b>8.79</b>	<b>179</b>	<b>20</b>	<b>11.17</b>

Table 19. The rate of mix-infection of STH of SAC in Hai Phong

Districts	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)

Le Chan	2	2	100.00	0	0.00	0	0.00
Thuy Nguyen	11	11	100.00	0	0.00	0	0.00
Kien Thuy	13	12	92.31	1	7.69	0	0.00
Kien An	8	8	100.00	0	0.00	0	0.00
Cat Hai	2	2	100.00	0	0.00	0	0.00
<b>Total</b>	<b>36</b>	<b>35</b>	<b>97.22</b>	<b>1</b>	<b>2.78</b>	<b>0</b>	<b>0.00</b>

Table 20. The rate of mix-infection of STH of SAC in Hai Phong city

Districts	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Le Chan	89	2	2.25	0	0.00	0	0.00
Thuy Nguyen	68	11	16.18	0	0.00	0	0.00
Kien Thuy	113	12	10.62	1	0.88	0	0.00
Kien An	50	8	16.00	0	0.00	0	0.00
Cat Hai	41	2	4.88	0	0.00	0	0.00
<b>Total</b>	<b>361</b>	<b>35</b>	<b>9.70</b>	<b>1</b>	<b>0.28</b>	<b>0</b>	<b>0.00</b>

### 3.10. THE RESULTS OF THE STH SURVEY IN HAUGIANG PROVINCE

Data analysis of fecal examination for primary school student: Preliminary results

Table 1: Stool sample collection process

Province	Date	District	No. emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Hau Giang	04/4/2016	Vi Thanh	80	52	0
	05/4/2016	Long My	80	52	0
	06/4/2016	Vi Thuy	80	54	0
	07/4/2016	Phung Hiep	150	112	0
	08/4/2016	Chau Thanh	100	84	0
	<b>Total</b>			<b>490</b>	<b>354</b>

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
Vi Thanh	52	14.69
Long My	52	14.69
Vi Thuy	54	15.25
Phung Hiep	112	31.64
Chau Thanh	84	23.73
<b>Total</b>	<b>354</b>	<b>100.0</b>



Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	226	63.81
4	128	36.16
5	0	0
<b>Total</b>	<b>354</b>	<b>100.0</b>

Table 4: General helminth infection rate of by districts.

District	No samples	No. General STH infection	Percent (%)	95 % - CI
Vi Thanh	52	0	0.00	0
Long My	52	1	1.92	-0.019-0.58
Vi Thuy	54	0	0.00	0
Phung Hiep	112	0	0.00	0
Chau Thanh	84	0	0.00	0
<b>Total</b>	<b>354</b>	<b>1</b>	<b>0.28</b>	<b>-0.003-0.008</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vi Thanh	52	0	0.00	0	0.00	0	0.00	0	0.00
Long My	52	0	0.00	1	1.92	0	0.00	1	1.92
Vi Thuy	54	0	0.00	0	0.00	0	0.00	0	0.00
Phung Hiep	112	0	0.00	0	0.00	0	0.00	0	0.00
Chau Thanh	84	0	0.00	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>354</b>	<b>0</b>	<b>0.00</b>	<b>1</b>	<b>0.28</b>	<b>0</b>	<b>0.00</b>	<b>1</b>	<b>0.28</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vi Thanh	0	0	0.00	0	0.00	0	0.00
Long My	0	0	0.00	0	0.00	0	0.00
Vi Thuy	0	0	0.00	0	0.00	0	0.00
Phung Hiep	0	0	0.00	0	0.00	0	0.00
Chau Thanh	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vi Thanh	52	0	0.00	0	0.00	0	0.00
Long My	52	0	0.00	0	0.00	0	0.00
Vi Thuy	54	0	0.00	0	0.00	0	0.00
Phung Hiep	112	0	0.00	0	0.00	0	0.00
Chau Thanh	84	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>354</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Vi Thanh	0	0	0	0	0	0	0	0
Long My	0	0	0	0	0	0	0	0
Vi Thuy	0	0	0	0	0	0	0	0
Phung Hiep	0	0	0	0	0	0	0	0
Chau Thanh	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 9: Intensity of Trichuris infection by district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vi Thanh	0	0	0.00	0	0.00	0	0.00
Long My	1	1	100.00	0	0.00	0	0.00
Vi Thuy	0	0	0.00	0	0.00	0	0.00
Phung Hiep	0	0	0.00	0	0.00	0	0.00
Chau Thanh	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>1</b>	<b>1</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 10: Intensity of Trichuris infection by district

District	No. sample	Light infection	Medium infection	Heavy infection
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	Examination	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vi Thanh	52	0	0.00	0	0.00	0	0.00
Long My	52	1	1.92	0	0.00	0	0.00
Vi Thuy	54	0	0.00	0	0.00	0	0.00
Phung Hiep	112	0	0.00	0	0.00	0	0.00
Chau Thanh	84	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>354</b>	<b>1</b>	<b>0.28</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Vi Thanh	0	0	0	0	0	0	0	0
Long My	1	72	0	0	0	0	1	72
Vi Thuy	0	0	0	0	0	0	0	0
Phung Hiep	0	0	0	0	0	0	0	0
Chau Thanh	0	0	0	0	0	0	0	0
<b>Total</b>	<b>1</b>	<b>72</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>72</b>

Table 12: Intensity of Hookworm infection according to District

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vi Thanh	0	0	0.00	0	0.00	0	0.00
Long My	0	0	0.00	0	0.00	0	0.00
Vi Thuy	0	0	0.00	0	0.00	0	0.00
Phung Hiep	0	0	0.00	0	0.00	0	0.00
Chau Thanh	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vi Thanh	52	0	0.00	0	0.00	0	0.00
Long My	52	0	0.00	0	0.00	0	0.00

Vi Thuy	54	0	0.00	0	0.00	0	0.00
Phung Hiep	112	0	0.00	0	0.00	0	0.00
Chau Thanh	84	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>354</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Vi Thanh	0	0	0	-	0	0	0	0
Long My	0	0	0	0	0	0	0	0
Vi Thuy	0	0	0	0	0	0	0	0
Phung Hiep	0	0	0	0	0	0	0	0
Chau Thanh	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Vi Thanh	26	0	0.00	26	0	0.00
Long My	28	0	0.00	24	0	0.00
Vi Thuy	23	0	0.00	31	0	0.00
Phung Hiep	61	0	0.00	51	0	0.00
Chau Thanh	43	0	0.00	41	0	0.00
<b>Total</b>	<b>181</b>	<b>0</b>	<b>0.00</b>	<b>173</b>	<b>0</b>	<b>0.00</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Vi Thanh	26	0	0.00	26	0	0.00
Long My	28	1	3.57	24	0	0.00
Vi Thuy	23	0	0.00	31	0	0.00
Phung Hiep	61	0	0.00	51	0	0.00
Chau Thanh	43	0	0.00	41	0	0.00
<b>Total</b>	<b>181</b>	<b>1</b>	<b>0.55</b>	<b>173</b>	<b>0</b>	<b>0.00</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Vi Thanh	26	0	0.00	35	0	0.00
Long My	28	0	0.00	35	0	0.00
Vi Thuy	23	0	0.00	27	0	0.00
Phung Hiep	61	0	0.00	31	0	0.00
Chau Thanh	43	0	0.00	30	0	0.00
<b>Total</b>	<b>181</b>	<b>0</b>	<b>0.00</b>	<b>158</b>	<b>0</b>	<b>0.00</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Vi Thanh	26	0	0.00	35	0	0.00
Long My	28	1	3.57	35	0	0.00
Vi Thuy	23	0	0.00	27	0	0.00
Phung Hiep	61	0	0.00	31	0	0.00
Chau Thanh	43	0	0.00	30	0	0.00
<b>Total</b>	<b>181</b>	<b>1</b>	<b>0.55</b>	<b>158</b>	<b>0</b>	<b>0.00</b>

Table 19. The rate of mix-infection of STH of SAC in Hau Giang province

Districts	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Vi Thanh	0	0	0.00	0	0.00	0	0.00
Long My	1	1	100.00	0	0.00	0	0.00
Vi Thuy	0	0	0.00	0	0.00	0	0.00
Phung Hiep	0	0	0.00	0	0.00	0	0.00
Chau Thanh	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>1</b>	<b>1</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 20. The rate of mix-infection of STH of SAC in Hau Giang province

Districts	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Vi Thanh	52	0	0.00	0	0.00	0	0.00
Long My	52	1	1.92	0	0.00	0	0.00

Vi Thuy	54	0	0.00	0	0.00	0	0.00
Phung Hiep	112	0	0.00	0	0.00	0	0.00
Chau Thanh	84	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>354</b>	<b>1</b>	<b>0.28</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

### 3.11. THE RESULTS OF THE STH SURVEY IN HUNGYEN PROVINCE

Data analysis of fecal examination for primary school student: Preliminary results

Table 1: Stool sample collection process

Province	Date	District	No. emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Hung Yen	18/1/2016	Tien Lu	80		
	19/1/2016	Tien Lu		35	0
		Kim Dong	150		
	20/1/2016	Kim Dong		45	0
		Van Giang	150		
	21/1/2016	Van Giang		40	0
		My Hao	150		
	22/1/2016	My Hao		34	0
		An Thi	150		
		Tien Lu	50		
		Kim Dong	40		
	23/1/2016	An Thi		30	0
		Tien Lu		24	4
		Kim Dong		10	0
		Van Giang	40		
		My Hao	60		
		An Thi	80		
	24/1/2016	Van Giang		11	0
		My Hao		17	3
		An Thi		38	0
<b>Total</b>			<b>950</b>	<b>284</b>	<b>7</b>

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
An Thi	68	24.55
Kim Dong	55	19.86
My Hao	48	17.33
Tien Lu	55	19.86
Van Giang	51	18.41
<b>Total</b>	<b>277</b>	<b>100</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
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3	257	92.78
4	6	2.17
5	14	5.05
<b>Total</b>	<b>277</b>	<b>100</b>

Table 4: General helminth infection rate of by districts.

District	No samples	No. General STH infection	Percent (%)	95 % CI
An Thi	68	7	10.29	0.029-0.177
Kim Đông	55	5	9.09	0.012-0.169
My Hao	48	4	8.33	0.002-0.164
Tien Lu	55	9	16.36	0.063-0.265
Van Giang	51	3	5.88	-0.008-0.126
<b>Total</b>	<b>277</b>	<b>28</b>	<b>10.11</b>	<b>0.065-0.137</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
An Thi	68	4	5.88	4	5.88	0	0.00	8	11.76
Kim Đông	55	2	3.64	2	3.64	1	1.82	5	9.09
My Hao	48	2	4.17	2	4.17	0	0.00	4	8.33
Tien Lu	55	4	7.27	5	9.09	0	0.00	9	16.36
Van Giang	51	0	0.00	3	5.88	0	0.00	3	5.88
<b>Total</b>	<b>277</b>	<b>12</b>	<b>4.33</b>	<b>16</b>	<b>5.78</b>	<b>1</b>	<b>0.36</b>	<b>29</b>	<b>10.47</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
An Thi	4	4	0.00	0	0.00	0	0.00
Kim Đông	2	2	0.00	0	0.00	0	0.00
My Hao	2	2	0.00	0	0.00	0	0.00
Tien Lu	4	4	0.00	0	0.00	0	0.00
Van Giang	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>12</b>	<b>12</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
An Thi	68	4	5.88	0	0.00	0	0.00
Kim Đông	55	2	3.64	0	0.00	0	0.00
My Hao	48	2	4.17	0	0.00	0	0.00
Tien Lu	55	4	7.27	0	0.00	0	0.00
Van Giang	51	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>277</b>	<b>12</b>	<b>4.33</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
An Thi	4	483 $\pm$ 245.21	0	0	0	0	4	483 $\pm$ 245.21
Kim Đông	2	72 $\pm$ 36	0	0	0	0	2	72 $\pm$ 36
My Hao	2	486 $\pm$ 450	0	0	0	0	2	486 $\pm$ 450
Tien Lu	4	75 $\pm$ 21.56	0	0	0	0	4	75 $\pm$ 21.56
Van Giang	0	0	0	0	0	0	0	0
<b>Total</b>	<b>12</b>	<b>279<math>\pm</math>111.43</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>12</b>	<b>279<math>\pm</math>111.43</b>

Table 9: Intensity of Trichuris infection by district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
An Thi	4	4	100.00	0	0.00	0	0.00
Kim Đông	2	2	100.00	0	0.00	0	0.00
My Hao	2	2	100.00	0	0.00	0	0.00
Tien Lu	5	5	100.00	0	0.00	0	0.00
Van Giang	3	3	100.00	0	0.00	0	0.00
<b>Total</b>	<b>16</b>	<b>16</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>



Table 10: Intensity of Trichuris infection by district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
An Thi	68	4	5.88	0	0.00	0	0.00
Kim Dong	55	2	3.64	0	0.00	0	0.00
My Hao	48	2	4.17	0	0.00	0	0.00
Tien Lu	55	5	9.09	0	0.00	0	0.00
Van Giang	51	3	5.88	0	0.00	0	0.00
<b>Total</b>	<b>277</b>	<b>16</b>	<b>5.78</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
An Thi	4	108 $\pm$ 44.36	0	0	0	0	4	108 $\pm$ 44.36
Kim Dong	2	60	0	0	0	0	2	60
My Hao	2	42 $\pm$ 6	0	0	0	0	2	42 $\pm$ 6
Tien Lu	5	91.2 $\pm$ 44.03	0	0	0	0	5	91.2 $\pm$ 44.03
Van Giang	3	60 $\pm$ 12	0	0	0	0	3	60 $\pm$ 12
<b>Total</b>	<b>16</b>	<b>79.5<math>\pm</math>17.31</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>79.5<math>\pm</math>17.31</b>

Table 12: Intensity of Hookworm infection according to District

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
An Thi	0	0	0.00	0	0.00	0	0.00
Kim Dong	1	1	100.00	0	0.00	0	0.00
My Hao	0	0	0.00	0	0.00	0	0.00
Tien Lu	0	0	0.00	0	0.00	0	0.00
Van Giang	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>1</b>	<b>1</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
An Thi	68	0	0.00	0	0.00	0	0.00
Kim Dong	55	1	1.82	0	0.00	0	0.00
My Hao	48	0	0.00	0	0.00	0	0.00
Tien Lu	55	0	0.00	0	0.00	0	0.00
Van Giang	51	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>277</b>	<b>1</b>	<b>0.36</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
An Thi	0	0	0	-	0	0	0	0
Kim Dong	1	36	0	0	0	0	1	36
My Hao	0	0	0	0	0	0	0	0
Tien Lu	0	0	0	0	0	0	0	0
Van Giang	0	0	0	0	0	0	0	0
<b>Total</b>	<b>1</b>	<b>36</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>36</b>

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
An Thi	26	0	0.00	42	4	9.52
Kim Dong	29	1	3.45	26	1	3.85
My Hao	18	0	0.00	30	2	6.67
Tien Lu	23	1	4.35	32	3	9.38
Van Giang	25	0	0.00	26	0	0.00
<b>Total</b>	<b>121</b>	<b>2</b>	<b>1.65</b>	<b>156</b>	<b>10</b>	<b>6.41</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
An Thi	26	1	3.85	42	3	7.14
Kim Dong	29	1	3.45	26	1	3.85
My Hao	18	0	0.00	30	2	6.67

Tien Lu	23	1	4.35	32	4	12.50
Van Giang	25	1	4.00	26	2	7.69
<b>Total</b>	<b>121</b>	<b>4</b>	<b>3.31</b>	<b>156</b>	<b>12</b>	<b>7.69</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
An Thi	26	0	0.00	42	0	0.00
Kim Dong	29	0	0.00	26	1	3.85
My Hao	18	0	0.00	30	0	0.00
Tien Lu	23	0	0.00	32	0	0.00
Van Giang	25	0	0.00	26	0	0.00
<b>Total</b>	<b>121</b>	<b>0</b>	<b>0.00</b>	<b>156</b>	<b>1</b>	<b>0.64</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
An Thi	26	1	3.85	42	6	14.29
Kim Dong	29	2	6.90	26	3	11.54
My Hao	18	0	0.00	30	4	13.33
Tien Lu	23	2	8.70	32	7	21.88
Van Giang	25	1	4.00	26	2	7.69
<b>Total</b>	<b>121</b>	<b>6</b>	<b>4.96</b>	<b>156</b>	<b>22</b>	<b>14.10</b>

Table 19. The rate of mix-infection of STH of SAC in Hung Yen

Districts	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
An Thi	7	6	85.71	1	14.29	0	0.00
Kim Dong	5	5	100.00	0	0.00	0	0.00
My Hao	4	4	100.00	0	0.00	0	0.00
Tien Lu	9	9	100.00	0	0.00	0	0.00
Van Giang	3	3	100.00	0	0.00	0	0.00
<b>Total</b>	<b>28</b>	<b>27</b>	<b>96.43</b>	<b>1</b>	<b>3.57</b>	<b>0</b>	<b>0.00</b>

Table 20. The rate of mix-infection of STH of SAC in Hung Yen

Districts	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)

An Thi	68	6	8.82	1	1.47	0	0.00
Kim Dong	55	5	9.09	0	0.00	0	0.00
My Hao	48	4	8.33	0	0.00	0	0.00
Tien Lu	55	9	16.36	0	0.00	0	0.00
Van Giang	51	3	5.88	0	0.00	0	0.00
<b>Total</b>	<b>277</b>	<b>27</b>	<b>9.75</b>	<b>1</b>	<b>0.36</b>	<b>0</b>	<b>0.00</b>

### 3.12. THE RESULTS OF THE STH SURVEY IN LONGAN PROVINCE

Data analysis of fecal examination for primary school age children.

Table 1: Stool sample collection process

Province	Date	District	No. emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Long An	12-14/4/2016	Kien Tuong	115	51	0
	14-15/4/2016	Chau Thanh	120	51	0
	15-17/4/2016	Tan An	130	59	0
	17-18/4/2016	Đuc Hoa	145	50	0
	18-20/4/2016	Can Giuoc	140	51	0
		<b>Total</b>		<b>650</b>	<b>262</b>

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
Kien Tuong	51	19.47
Chau Thanh	51	19.47
Tan An	59	22.52
Đuc Hoa	50	19.08
Can Giuoc	51	19.47
<b>Total</b>	<b>262</b>	<b>100</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	262	100
4	0	0.00
5	0	0.00
<b>Total</b>	<b>262</b>	<b>100.0</b>

Table 4: General helminth infection rate by districts.

District	No samples	No. General STH infection	Percent (%)	95 % CI
Kien Tuong	50	2	4	-0.016-0.096
Tan An	51	0	0	0

Chau Thanh	51	2	3.92	-0.016-0.094
Duc Hoa	51	2	3.92	-0.016-0.094
Can Giuoc	59	0	0	0
<b>Total</b>	<b>262</b>	<b>6</b>	<b>2.29</b>	<b>0.005-0.041</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Kien Tuong	50	0	0	0	0	2	4	2	4
Tan An	51	0	0	0	0	0	0	0	0
Chau Thanh	51	0	0	1	1.96	1	1.96	2	3.92
Duc Hoa	51	0	0	0	0	2	3.92	2	3.92
Can Giuoc	59	0	0	0	0	0	0	0	0
<b>Total</b>	<b>262</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0.38</b>	<b>5</b>	<b>1.91</b>	<b>6</b>	<b>2.29</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Kien Tuong	2	0	0	0	0	0	0
Tan An	0	0	0	0	0	0	0
Chau Thanh	2	0	0	0	0	0	0
Duc Hoa	2	0	0	0	0	0	0
Can Giuoc	0	0	0	0	0	0	0
<b>Total</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Kien Tuong	50	0	0	0	0	0	0
Tan An	51	0	0	0	0	0	0
Chau Thanh	51	0	0	0	0	0	0

Duc Hoa	51	0	0	0	0	0	0
Can Giuoc	59	0	0	0	0	0	0
Total	262	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Kien Tuong	0	0	0	0	0	0	0	0
Tan An	0	0	0	0	0	0	0	0
Chau Thanh	0	0	0	0	0	0	0	0
Duc Hoa	0	0	0	0	0	0	0	0
Can Giuoc	0	0	0	0	0	0	0	0
Total	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 9: Intensity of Trichuris infection by district

Distict	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Kien Tuong	2	0	0	0	0	0	0
Tan An	0	0	0	0	0	0	0
Chau Thanh	2	1	50	0	0	0	0
Duc Hoa	2	0	0	0	0	0	0
Can Giuoc	0	0	0	0	0	0	0
Total	<b>6</b>	<b>1</b>	<b>16.66</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 10: Intensity of Trichuris infection by district

Distict	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Kien Tuong	50	0	0	0	0	0	0
Tan An	51	0	0	0	0	0	0

Chau Thanh	51	1	1.96	0	0	0	0
Duc Hoa	51	0	0	0	0	0	0
Can Giuoc	59	0	<b>0</b>	0	0	0	0
Total	262	<b>1</b>	<b>0.38</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Kien Tuong	0	0	0	0	0	0	0	0
Tan An	0	0	0	0	0	0	0	0
Chau Thanh	1	60	0	0	0	0	1	60
Duc Hoa	0	0	0	0	0	0	0	0
Can Giuoc	0	0	0	0	0	0	0	0
Total	<b>1</b>	<b>60</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>60</b>

Table 12: Intensity of Hookworm infection according to District

Distric	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Kien Tuong	2	2	100	0	0	0	0
Tan An	0	0	0	0	0	0	0
Chau Thanh	1	1	100	0	0	0	0
Duc Hoa	2	2	100	0	0	0	0
Can Giuoc	0	0	0	0	0	0	0
Total	<b>5</b>	<b>5</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 13: Intensity of Hookworm infection according to District

Districh	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Kien Tuong	50	2	4	0	0	0	0

Tan An	51	0	0	0	0	0	0
Chau Thanh	51	1	1.96	0	0	0	0
Duc Hoa	51	2	3.92	0	0	0	0
Can Giuoc	59	0	0	0	0	0	0
Total	262	<b>5</b>	1.9	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Kien Tuong	2	96 $\pm$ 24	0	0	0	0	2	96 $\pm$ 24
Tan An	0	0	0	0	0	0	0	0
Chau Thanh	1	96	0	0	0	0	1	96
Duc Hoa	2	696 $\pm$ 648	0	0	0	0	2	696 $\pm$ 648
Can Giuoc	0	<b>0</b>	0	0	0	0	0	<b>0</b>
Total	<b>5</b>	<b>336<math>\pm</math>252.28</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>336<math>\pm</math>252.28</b>

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Kien Tuong	24	0	0	26	0	0
Tan An	26	0	0	25	0	0
Chau Thanh	16	0	0	35	0	0
Duc Hoa	26	0	0	25	0	0
Can Giuoc	36	0	0	23	0	0
Total	128	<b>0</b>	<b>0</b>	134	<b>0</b>	<b>0</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Kien Tuong	24	0	0	26	0	0



Tan An	26	0	0	25	0	0
Chau Thanh	16	0	0	35	1	2.86
Duc Hoa	26	0	0	25	0	0
Can Giuoc	36	0	0	23	0	0
Total	128	<b>0</b>	<b>0</b>	134	<b>1</b>	<b>0.75</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Kien Tuong	24	1	4.16	26	1	3.84
Tan An	26	0	0	25	0	0
Chau Thanh	16	1	6.25	35	0	0
Duc Hoa	26	1	3.84	25	1	4
Can Giuoc	36	0	0	23	0	0
Total	128	<b>3</b>	<b>2.34</b>	134	<b>2</b>	<b>1.49</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Kien Tuong	24	1	4.16	26	1	3.84
Tan An	26	0	0	25	0	0
Chau Thanh	16	1	6.25	35	1	2.86
Duc Hoa	26	1	3.84	25	1	4
Can Giuoc	36	0	0	23	0	0
Total	128	<b>3</b>	<b>2.34</b>	134	<b>3</b>	<b>2.24</b>

Table 19. The rate of mix-infection of STH of SAC in Long An

Districts	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Kien Tuong	2	2	100	0	0	0	0
Tan An	0	0	0	0	0	0	0

Chau Thanh	2	2	100	0	0	0	0
Duc Hoa	2	2	100	0	0	0	0
Can Giuoc	0	0	0	0	0	0	0
<b>Total</b>	<b>6</b>	<b>6</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 20. The rate of mix-infection of STH of SAC in Long An

Distrits	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Kien Tuong	50	2	4.00	0	0	0	0
Tan An	51	0	0.00	0	0	0	0
Chau Thanh	51	2	3.92	0	0	0	0
Duc Hoa	51	2	3.92	0	0	0	0
Can Giuoc	59	0	0.00	0	0	0	0
<b>Total</b>	<b>262</b>	<b>6</b>	<b>2.29</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### 3.13. THE RESULTS OF THE STH SURVEY IN NINHBINH PROVINCE

Data analysis of fecal examination for primary school student: Preliminary results

Table 1: Stool sample collection process

Province	Date	District	No. emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Ninh Binh	17/1/2016	Yen Mo	90		
		Kim Son	90		
	18/1/2016	Yen Mo		46	0
		Yen Mo	50		
	19/1/2016	Kim Son		26	0
		Yen Mo		5	0
		Kim Son	90		
		Yen Khanh	100		
	20/1/2016	Kim Son		14	0
		Yen Khanh		42	0
		Yen Khanh	50		
		Gia Vien	90		
	21/1/2016	Yen Khanh		8	0
		Gia Vien		15	0
Gia Vien		90			

	22/1/2016	Gia Vien		35	0
		Nho Quan	90		
		Nho Quan		42	0
	23/1/2016	Nho Quan	50		
		Nho Quan		9	0
	24/1/2016	Kim Son	50		
		<b>Total</b>	<b>840</b>	<b>252</b>	<b>0</b>

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
GiaVien	50	19.84
Kim Son	50	19.84
NhoQuan	51	20.24
Yen Khanh	50	19.84
Yen Mo	51	20.24
<b>Total</b>	<b>252</b>	<b>100</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	163	64.68
4	50	19.84
5	39	15.48
<b>Total</b>	<b>252</b>	<b>100</b>

Table 4: General helminth infection rate by districts.

District	No samples	No. General STH infection	Percent (%)	95 % CI
Yen Mo	51	4	7.84	0.002-0.155
Nho Quan	51	21	41.18	0.272-0.552
Yen Khanh	50	6	12	0.027-0.213
Gia Vien	50	13	26	0.134-0.386
Kim Son	50	0	0	0
<b>Total</b>	<b>252</b>	<b>44</b>	<b>17.46</b>	<b>0.127-0.222</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Yen Mo	51	0	0	4	7.84	0	0	4	7.84
Nho Quan	51	5	9.8	18	35.29	0	0	23	46
Yen Khanh	50	2	4	4	8	0	0	6	12
Gia Vien	50	6	12	10	20	0	0	16	32
Kim Son	50	0	0	0	0	0	0	0	0
<b>Total</b>	<b>252</b>	<b>13</b>	<b>5.16</b>	<b>36</b>	<b>14.29</b>	<b>0</b>	<b>0</b>	<b>49</b>	<b>19.44</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Yen Mo	0	0	0	0	0	0	0
Nho Quan	5	5	100	0	0	0	0
Yen Khanh	2	2	100	0	0	0	0
Gia Vien	6	3	50	2	33.33	1	16.67
Kim Son	0	0	0	0	0	0	0
<b>Total</b>	<b>13</b>	<b>10</b>	<b>76.92</b>	<b>2</b>	<b>15.38</b>	<b>1</b>	<b>7.69</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Yen Mo	51	0	0	0	0	0	0
Nho Quan	51	5	9.8	0	0	0	0
Yen Khanh	50	2	4	0	0	0	0
Gia Vien	50	3	6	2	4	1	2
Kim Son	50	0	0	0	0	0	0
<b>Total</b>	<b>252</b>	<b>10</b>	<b>3.97</b>	<b>2</b>	<b>0.79</b>	<b>1</b>	<b>0.4</b>

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Yen Mo	0	0	0	0	0	0	0	0
Nho Quan	5	1120.8 $\pm$ 440.43	0	0	0	0	5	1120.8 $\pm$ 440.43
Yen Khanh	2	60 $\pm$ 12	0	0	0	0	2	60 $\pm$ 12
Gia Vien	3	1118 $\pm$ 955.06	2	20280 $\pm$ 96480	1	57000	6	16854 $\pm$ 9243.17
Kim Son	0	0	0	0	0	0	0	0
<b>Total</b>	<b>10</b>	<b>928.8<math>\pm</math>353.52</b>	<b>2</b>	<b>20280<math>\pm</math>96480</b>	<b>1</b>	<b>57000</b>	<b>13</b>	<b>8219.07<math>\pm</math>4668.09</b>

Table 9: Intensity of Trichuris infection by district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Yen Mo	4	4	100	0	0	0	0
Nho Quan	18	17	94.44	1	5.55	0	0
Yen Khanh	4	4	100	0	0	0	0
Gia Vien	10	10	100	0	0	0	0
Kim Son	0	0	0	0	0	0	0
<b>Total</b>	<b>36</b>	<b>35</b>	<b>97.22</b>	<b>1</b>	<b>2.77</b>	<b>0</b>	<b>0</b>

Table 10: Intensity of Trichuris infection by district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Yen Mo	51	4	7.84	0	0	0	0



Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Yen Mo	51	0	0	0	0	0	0
Nho Quan	51	0	0	0	0	0	0
Yen Khanh	50	0	0	0	0	0	0
Gia Vien	50	0	0	0	0	0	0
Kim Son	50	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total</b>	<b>252</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Yen Mo	0	0	0	0	0	0	0	0
Nho Quan	0	0	0	0	0	0	0	0
Yen Khanh	0	0	0	0	0	0	0	0
Gia Vien	0	0	0	0	0	0	0	0
Kim Son	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Yen Mo	26	0	0	25	0	0
Nho Quan	21	0	0	30	0	0
Yen Khanh	30	0	0	20	0	0
Gia Vien	25	4	16	25	2	8
Kim Son	27	0	0	23	0	0
<b>Total</b>	<b>129</b>	<b>4</b>	<b>3.1</b>	<b>123</b>	<b>2</b>	<b>1.63</b>

Table 16: Rate of Trichuris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Yen Mo	26	3	11.54	25	1	4
Nho Quan	21	4	19.05	30	14	46.67
Yen Khanh	30	2	6.67	20	2	10
Gia Vien	25	5	20	25	5	20
Kim Son	27	0	0	23	0	0
<b>Total</b>	129	<b>14</b>	10.85	123	<b>22</b>	17.89

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Yen Mo	26	0	0	25	0	0
Nho Quan	21	0	0	30	0	0
Yen Khanh	30	0	0	20	0	0
Gia Vien	25	0	0	25	0	0
Kim Son	27	0	0	23	0	0
<b>Total</b>	129	<b>0</b>	<b>0</b>	123	<b>0</b>	<b>0</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Yen Mo	26	3	11.54	25	1	4
Nho Quan	21	4	19.05	30	17	56.67
Yen Khanh	30	3	10	20	3	15
Gia Vien	25	7	28	25	6	24
Kim Son	27	<b>0</b>	0	23	<b>0</b>	0
<b>Total</b>	129	<b>17</b>	13.18	123	<b>27</b>	21.95



Table 19. The rate of mix-infection of STH of SAC in Ninh Binh province

Distrits	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Yen Mo	4	4	100	0	0	0	0
Nho Quan	21	19	90.48	2	23.81	0	0
Yen Khanh	6	6	100	0	0	0	0
Gia Vien	13	10	76.92	3	23.07	0	0
Kim Son	0	0	0	0	0	0	0
<b>Total</b>	<b>44</b>	<b>39</b>	<b>88.64</b>	<b>5</b>	<b>11.36</b>	<b>0</b>	<b>0</b>

Table 20. The rate of mix-infection of STH of SAC in Ninh Binh province

Distrits	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Yen Mo	51	4	7.84	0	0	0	0
Nho Quan	51	19	37.25	2	3.92	0	0
Yen Khanh	50	6	12	0	0	0	0
Gia Vien	50	10	20	3	6	0	0
Kim Son	50	0	0	0	0	0	0
<b>Total</b>	<b>252</b>	<b>39</b>	<b>15.48</b>	<b>5</b>	<b>1.98</b>	<b>0</b>	<b>0</b>

### 3.14. THE RESULTS OF THE STH SURVEY IN QUANGNINH PROVINCE

Data analysis of fecal examination for primary school student: Preliminary results

Table 1: Stool sample collection process

Province	Date	District	No. emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
<b>QUANG NINH</b>	06/5/2016	Tien Yen	100	50	0
	07/5/2016	Van Don	70	44	0
	08/5/2016	Van Don	50	11	0
	09/5/2016	Ha Long	100	51	0
	10/5/2016	Hoanh Bo	70	17	0
	11/5/2016	Hoanh Bo	50	33	0

	12/5/2016	Quang Yen	100	50	0
	<b>Total</b>		<b>540</b>	<b>256</b>	<b>0</b>

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
Tien Yen	50	19.5
Van Don	55	21.5
Ha Long	51	19.9
Hoanh Bo	50	19.5
Quang Yen	50	19.5
<b>Total</b>	<b>256</b>	<b>100.0</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	227	88.67
4	29	11.33
5	0	0.00
<b>Total</b>	<b>256</b>	<b>100.0</b>

Table 4: General helminth infection rate by districts.

District	No samples	No. General STH infection	Percent (%)	95 % CI
Tien Yen	50	19	38.00	0.241-0.519
Van Don	55	6	10.91	0.024-0.194
Ha Long	51	2	3.92	-0.016-0.094
Hoanh Bo	50	10	20.00	0.085-0.314
Quang Yen	50	15	30.00	0.168-0.431
<b>Total</b>	<b>256</b>	<b>52</b>	<b>20.31</b>	<b>0.154-0.253</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Tien Yen	50	7	14.00	16	32.00	0	0.00	23	46.00
Van Don	55	1	1.82	5	9.09	2	3.64	8	14.55
Ha Long	51	0	0.00	1	1.96	1	1.96	2	3.92
Hoanh Bo	50	2	4.00	7	14.00	2	4.00	11	22.00
Quang Yen	50	2	4.00	13	26.00	0	0.00	15	30.00
<b>Total</b>	<b>256</b>	<b>12</b>	<b>4.69</b>	<b>42</b>	<b>16.41</b>	<b>5</b>	<b>1.95</b>	<b>59</b>	<b>23.05</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Tien Yen	7	7	100.00	0	0.00	0	0.00
Van Don	1	1	100.00	0	0.00	0	0.00
Ha Long	0	0	0.00	0	0.00	0	0.00
Hoanh Bo	2	2	100.00	0	0.00	0	0.00
Quang Yen	2	2	100.00	0	0.00	0	0.00
<b>Total</b>	<b>12</b>	<b>12</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Tien Yen	50	7	14.00	0	0.00	0	0.00
Van Don	55	1	1.82	0	0.00	0	0.00
Ha Long	51	0	0.00	0	0.00	0	0.00
Hoanh Bo	50	2	4.00	0	0.00	0	0.00
Quang Yen	50	2	4.00	0	0.00	0	0.00
<b>Total</b>	<b>256</b>	<b>12</b>	4.69	<b>0</b>	0.00	<b>0</b>	0.00

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Tien Yen	7	857.14 $\pm$ 336.15	0	0	0	0	7	857.14 $\pm$ 336.15
Van Don	1	108	0	0	0	0	1	108
Ha Long	0	486 $\pm$ 450	0	0	0	0	0	486 $\pm$ 450
Hoanh Bo	2	342 $\pm$ 330	0	0	0	0	2	342 $\pm$ 330
Quang Yen	2	210 $\pm$ 126	0	0	0	0	2	210 $\pm$ 126
<b>Total</b>	<b>12</b>	<b>601<math>\pm</math>215.63</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	12	<b>601<math>\pm</math>215.63</b>

Table 9: Intensity of Trichuris infection by district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Tien Yen	16	16	100.00	0	0.00	0	0.00
Van Don	5	5	100.00	0	0.00	0	0.00
Ha Long	1	1	100.00	0	0.00	0	0.00
Hoanh Bo	7	7	100.00	0	0.00	0	0.00
Quang Yen	13	12	92.31	1	0.00	0	0.00
<b>Total</b>	<b>42</b>	<b>41</b>	<b>97.62</b>	<b>1</b>	<b>2.38</b>	<b>0</b>	<b>0.00</b>

Table 10: Intensity of Trichuris infection by district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Tien Yen	50	16	32.00	0	0.00	0	0.00
Van Don	55	5	9.09	0	0.00	0	0.00
Ha Long	51	1	1.96	0	0.00	0	0.00
Hoanh Bo	50	7	14.00	0	0.00	0	0.00
Quang Yen	50	12	24.00	1	2.00	0	0.00
<b>Total</b>	<b>256</b>	<b>41</b>	<b>16.02</b>	<b>1</b>	<b>0.39</b>	<b>0</b>	<b>0.00</b>

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Tien Yen	16	96.75 $\pm$ 18.05	0	0	0	0	16	96.75 $\pm$ 18.05
Van Don	5	72 $\pm$ 12.59	0	0	0	0	5	72 $\pm$ 12.59
Ha Long	1	36	0	0	0	0	1	36
Hoanh Bo	7	30.86 $\pm$ 9.75	0	0	0	0	7	30.86 $\pm$ 9.75
Quang Yen	12	81 $\pm$ 25.93	1	1692	0	0	13	204.92 $\pm$ 126.19
<b>Total</b>	<b>41</b>	<b>76.39<math>\pm</math>10.97</b>	<b>1</b>	<b>1692</b>	<b>0</b>	<b>0</b>	<b>42</b>	<b>114.86<math>\pm</math>39.93</b>

Table 12: Intensity of Hookworm infection according to District

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Tien Yen	0	0	0.00	0	0.00	0	0.00
Van Don	2	2	100.00	0	0.00	0	0.00
Ha Long	1	1	0.00	0	0.00	0	0.00
Hoanh Bo	2	2	100.00	0	0.00	0	0.00
Quang Yen	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>5</b>	<b>5</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Tien Yen	50	0	0.00	0	0.00	0	0.00
Van Don	55	2	3.64	0	0.00	0	0.00
Ha Long	51	1	1.96	0	0.00	0	0.00
Hoanh Bo	50	2	4.00	0	0.00	0	0.00
Quang Yen	50	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>256</b>	<b>5</b>	<b>1.95</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Tien Yen	0	0	0	0	0	0	0	0
Van Don	2	42 $\pm$ 6	0	0	0	0	2	42 $\pm$ 6
Ha Long	1	12	0	0	0	0	1	12
Hoanh Bo	2	90 $\pm$ 6	0	0	0	0	2	90 $\pm$ 6
Quang Yen	0	0	0	0	0	0	0	0
<b>Total</b>	<b>5</b>	<b>55.2<math>\pm</math>15.46</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>55.2<math>\pm</math>15.46</b>

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Tien Yen	29	2	6.90	21	5	23.81
Van Don	25	0	0.00	30	1	3.33
Ha Long	24	0	0.00	27	0	0.00

Hoanh Bo	32	2	6.25	18	0	0.00
Quang Yen	32	2	6.25	18	0	0.00
<b>Total</b>	<b>142</b>	<b>6</b>	<b>4.23</b>	<b>114</b>	<b>6</b>	<b>5.26</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Tien Yen	29	8	27.59	21	8	38.10
Van Don	25	2	8.00	30	3	10.00
Ha Long	24	0	0.00	27	1	3.70
Hoanh Bo	32	6	18.75	18	1	5.56
Quang Yen	32	7	21.88	18	6	33.33
<b>Total</b>	<b>142</b>	<b>23</b>	<b>16.20</b>	<b>114</b>	<b>19</b>	<b>16.67</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Tien Yen	29	0	0.00	21	0	0.00
Van Don	25	1	4.00	30	1	3.33
Ha Long	24	0	0.00	27	1	3.70
Hoanh Bo	32	1	3.13	18	1	5.56
Quang Yen	32	0	0.00	18	0	0.00
<b>Total</b>	<b>142</b>	<b>2</b>	<b>1.41</b>	<b>114</b>	<b>3</b>	<b>2.63</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Tien Yen	29	9	31.03	21	10	47.62
Van Don	25	3	12.00	30	3	10.00
Ha Long	24	0	0.00	27	2	7.41
Hoanh Bo	32	8	25.00	18	2	11.11
Quang Yen	32	9	28.13	18	6	33.33
<b>Total</b>	<b>142</b>	<b>29</b>	<b>20.42</b>	<b>114</b>	<b>23</b>	<b>20.18</b>

Table 19. The rate of mix-infection of STH of SAC in Quang Ninh province

Districts	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Tien Yen	19	15	78.95	4	21.05	0	0.00

Van Don	6	4	66.67	2	33.33	0	0.00
Ha Long	2	2	100.00	0	0.00	0	0.00
Hoanh Bo	10	9	90.00	1	0.00	0	0.00
Quang Yen	15	15	100.00	0	0.00	0	0.00
<b>Total</b>	<b>52</b>	<b>45</b>	<b>86.54</b>	<b>7</b>	<b>13.46</b>	<b>0</b>	<b>0.00</b>

Table 20. The rate of mix-infection of STH of SAC in Quang Ninh

Distrits	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Tien Yen	50	15	30.00	4	8.00	0	0.00
Van Don	55	4	7.27	2	3.64	0	0.00
Ha Long	51	2	3.92	0	0.00	0	0.00
Hoanh Bo	50	9	18.00	1	2.00	0	0.00
Quang Yen	50	15	30.00	0	0.00	0	0.00
<b>Total</b>	<b>256</b>	<b>45</b>	<b>17.58</b>	<b>7</b>	<b>2.73</b>	<b>0</b>	<b>0.00</b>

### 3.15. THE RESULTS OF THE STH SURVEY IN SOCTRANG PROVINCE

Data analysis of fecal examination for primary school student: Preliminary results

Table 1: Stool sample collection process

Province	Date	District	No. emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Soc Trang	12/4/2016	Chau Thanh	80	56	0
	13/4/2016	My Tu	80	52	0
	14-15/4/2016	Vinh Chau	80	52	0
	16-17/4/2016	Ke Sach	80	60	0
	18-19/4/2016	My Xuyen	80	50	0
	<b>Total</b>			<b>400</b>	<b>270</b>

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
Chau Thanh	60	22.22
My Tu	56	20.74
Vinh Chau	52	19.26
Ke Sach	50	18.52
My Xuyen	52	19.26
<b>Total</b>	<b>270</b>	<b>100</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	247	91.48
4	15	5.56
5	8	2.96
<b>Total</b>	<b>270</b>	<b>100</b>

Table 4: General helminth infection rate by districts.

District	No samples	No. General STH infection	Percent (%)	95 % CI
Ke Sach	60	1	1.67	-0.016-0.093
Chau Thanh	56	11	19.64	0.089-0.304
Vinh Chau	52	2	3.85	-0.016-0.050
My Xuyen	50	2	4	-0.016-0.096
My Tu	52	10	19.23	0.082-0.303
<b>Total</b>	<b>270</b>	<b>26</b>	<b>9.63</b>	<b>0.061-0.132</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Ke Sach	60	0	0	0	0	1	1.67	1	1.67
Chau Thanh	56	3	5.36	0	0	8	14.29	11	19.64
Vinh Chau	52	1	1.92	0	0	1	1.92	2	3.85
My Xuyen	50	0	0	0	0	2	4	2	4
My Tu	52	1	1.92	0	0	9	17.31	10	19.23
<b>Total</b>	<b>270</b>	<b>5</b>	<b>1.85</b>	<b>0</b>	<b>0</b>	<b>21</b>	<b>7.78</b>	<b>26</b>	<b>9.63</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)



Ke Sach	0	0	0	0	0	0	0
Chau Thanh	3	2	66.67	1	33.33	0	0
Vinh Chau	1	1	100	0	0	0	0
My Xuyen	0	0	0	0	0	0	0
My Tu	1	1	100	0	0	0	0
<b>Total</b>	<b>5</b>	<b>4</b>	<b>80</b>	<b>1</b>	<b>20</b>	<b>0</b>	<b>0</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Ke Sach	60	0	0	0	0	0	0
Chau Thanh	56	2	3.57	1	1.79	0	0
Vinh Chau	52	1	1.92	0	0	0	0
My Xuyen	50	0	0	0	0	0	0
My Tu	52	1	1.92	0	0	0	0
<b>Total</b>	<b>270</b>	<b>4</b>	<b>1.48</b>	<b>1</b>	<b>0.37</b>	<b>0</b>	<b>0</b>

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Ke Sach	0	0	0	0	0	0	0	0
Chau Thanh	2	72 $\pm$ 12	1	7656	0	0	3	2600 $\pm$ 2528
Vinh Chau	1	60	0	0	0	0	1	60
My Xuyen	0	0	0	0	0	0	0	0
My Tu	1	168	0	0	0	0	1	168



Sach								
Chau Thanh	0	0	0	0	0	0	0	0
Vinh Chau	0	0	0	0	0	0	0	0
My Xuyen	0	0	0	0	0	0	0	0
My Tu	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 12: Intensity of Hookworm infection according to District

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Ke Sach	1	1	100	0	0	0	0
Chau Thanh	8	7	87.5	0	0	1	12.5
Vinh Chau	1	1	100	0	0	0	0
My Xuyen	2	2	100	0	0	0	0
My Tu	9	7	77.78	1	11.11	1	11.11
<b>Total</b>	<b>21</b>	<b>18</b>	<b>85.17</b>	<b>1</b>	<b>4.76</b>	<b>2</b>	<b>9.53</b>

Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Ke Sach	60	1	1.67	0	0	0	0
Chau Thanh	56	7	12.5	0	0	1	1.79
Vinh Chau	52	1	1.92	0	0	0	0
My Xuyen	50	2	4	0	0	0	0
My Tu	52	7	13.46	1	1.92	1	1.92
<b>Total</b>	<b>270</b>	<b>18</b>	<b>6.67</b>	<b>1</b>	<b>0.37</b>	<b>2</b>	<b>0.74</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Ke Sach	1	60	0	0	0	0	1	60
Chau Thanh	7	222.8 $\pm$ 64.6	0	0	1	11364	8	1615.5 $\pm$ 1393.7
Vinh Chau	1	264	0	0	0	0	1	264
My Xuyen	2	54 $\pm$ 18	0	0	0	0	2	54 $\pm$ 18
My Tu	7	264.8 $\pm$ 83	1	2172	1	7728	9	1292 $\pm$ 834.4
<b>Total</b>	<b>18</b>	<b>206.6<math>\pm</math>42.4</b>	<b>1</b>	<b>2172</b>	<b>2</b>	<b>9546<math>\pm</math>1818</b>	<b>21</b>	<b>1189.7<math>\pm</math>627.1</b>

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Ke Sach	32	0	0	28	0	0
Chau Thanh	34	3	8.82	22	0	0
Vinh Chau	24	0	0	28	1	3.57
My Xuyen	20	0	0	30	0	0
My Tu	24	1	4.16	28	0	0
<b>Total</b>	<b>134</b>	<b>4</b>	<b>2.98</b>	<b>136</b>	<b>1</b>	<b>0.73</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Ke Sach	32	0	0	28	0	0
Chau Thanh	34	0	0	22	0	0
Vinh Chau	24	0	0	28	0	0

My Xuyen	20	0	0	30	0	0
My Tu	24	0	0	28	0	0
<b>Total</b>	<b>134</b>	<b>0</b>	<b>0</b>	<b>136</b>	<b>0</b>	<b>0</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Ke Sach	32	1	3.12	28	0	0
Chau Thanh	34	4	11.76	22	4	18.18
Vinh Chau	24	0	0	28	1	3.57
My Xuyen	20	1	5	30	1	3.3
My Tu	24	6	25	28	3	10.71
<b>Total</b>	<b>134</b>	<b>12</b>	<b>8.95</b>	<b>136</b>	<b>9</b>	<b>6.61</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Ke Sach	32	1	3.12	28	0	0
Chau Thanh	34	7	20.58	22	4	18.18
Vinh Chau	24	0	0	28	2	7.14
My Xuyen	20	1	5	30	1	3.33
My Tu	24	7	29.16	28	3	10.71
<b>Total</b>	<b>134</b>	<b>16</b>	<b>11.94</b>	<b>136</b>	<b>10</b>	<b>7.35</b>

Table 19. The rate of mix-infection of STH of SAC in Soc Trang province

Districts	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Ke Sach	1	1	100	0	0	0	0
Chau Thanh	11	11	100	0	0	0	0

Vinh Chau	2	2	100	0	0	0	0
My Xuyen	2	2	100	0	0	0	0
My Tu	10	10	100	0	0	0	0
<b>Total</b>	<b>26</b>	<b>26</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 20. The rate of mix-infection of STH of SAC in Soc Trang

Distrits	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Ke Sach	60	1	1.67	0	0	0	0
Chau Thanh	56	11	19.64	0	0	0	0
Vinh Chau	52	2	3.85	0	0	0	0
My Xuyen	50	2	4	0	0	0	0
My Tu	52	10	19.23	0	0	0	0
<b>Total</b>	<b>270</b>	<b>26</b>	<b>9.63</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### 3.16. THE RESULTS OF THE STH SURVEY IN TIENGIANG PROVINCE

Data analysis of fecal examination for primary school student: Preliminary results

Table 1: Stool sample collection process

Province	Date	District	No. emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Tiền Giang	4 - 6/4/2016	Go Cong	130	50	0
	6 - 7/4/2016	Cho Gao	70	51	0
	7- 9/4/2016	Tan Phu Dong	170	72	0
	9-10/4/2016	Cai Lay	100	51	0
	10-12/4/2016	Cai Be	125	70	0
	<b>Total</b>		<b>595</b>	<b>308</b>	<b>0</b>

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
Go Cong	50	16.9
Cho Gao	51	17.3
Tan Phu Dong	72	24.4
Cai Lay	51	17.3

Cai Be	70	23.7
<b>Total</b>	<b>295</b>	<b>100.0</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	295	100.0
4	0	0
5	0	0
<b>Total</b>	<b>295</b>	<b>100.0</b>

Table 4: General helminth infection rate by districts.

District	No samples	No. General STH infection	Percent (%)	95 % CI
Go Cong	50	2	4.00	-0.016-0.096
Cho Gao	51	1	1.96	-0.019-0.059
Tan Phu Dong	73	2	2.74	-0.011-0.066
Cai Lay	51	0	0.00	0
Cai Be	70	0	0.00	0
<b>Total</b>	<b>295</b>	<b>5</b>	<b>1.69</b>	<b>0.002-0.031</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Go Cong	50	0	0.00	2	4.00	0	0.00	2	4.00
Cho Gao	51	0	0.00	0	0.00	1	1.96	1	1.96
Tan Phu Dong	73	0	0.00	0	0.00	2	2.74	2	2.74
Cai Lay	51	0	0.00	0	0.00	0	0.00	0	0.00
Cai Be	70	0	0.00	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>295</b>	<b>0</b>	<b>0.00</b>	<b>2</b>	<b>0.68</b>	<b>3</b>	<b>1.02</b>	<b>5</b>	<b>1.69</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Go Cong	0	0	0.00	0	0.00	0	0.00
Cho Gao	0	0	0.00	0	0.00	0	0.00
Tan Phu Dong	0	0	0.00	0	0.00	0	0.00
Cai Lay	0	0	0.00	0	0.00	0	0.00
Cai Be	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Go Cong	50	0	0.00	0	0.00	0	0.00
Cho Gao	51	0	0.00	0	0.00	0	0.00
Tan Phu Dong	73	0	0.00	0	0.00	0	0.00
Cai Lay	51	0	0.00	0	0.00	0	0.00
Cai Be	70	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>295</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Go Cong	0	0	0	0	0	0	0	0
Cho Gao	0	0	0	0	0	0	0	0
Tan Phu Dong	0	0	0	0	0	0	0	0
Cai Lay	0	0	0	0	0	0	0	0
Cai Be	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 9: Intensity of Trichuris infection by district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Go Cong	2	2	100.00	0	0.00	0	0.00
Cho Gao	0	0	0.00	0	0.00	0	0.00
Tan Phu Dong	0	0	0.00	0	0.00	0	0.00
Cai Lay	0	0	0.00	0	0.00	0	0.00
Cai Be	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>2</b>	<b>2</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 10: Intensity of Trichuris infection by district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)



Go Cong	50	2	4.00	0	0.00	0	0.00
Cho Gao	51	0	0.00	0	0.00	0	0.00
Tan Phu Dong	73	0	0.00	0	0.00	0	0.00
Cai Lay	51	0	0.00	0	0.00	0	0.00
Cai Be	70	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>295</b>	<b>2</b>	<b>0.68</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Go Cong	2	96 $\pm$ 24	0	0	0	0	2	96 $\pm$ 24
Cho Gao	0	0	0	0	0	0	0	0
Tan Phu Dong	0	0	0	0	0	0	0	0
Cai Lay	0	0	0	0	0	0	0	0
Cai Be	0	0	0	0	0	0	0	0
<b>Total</b>	<b>2</b>	<b>96<math>\pm</math>24</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>96<math>\pm</math>24</b>

Table 12: Intensity of Hookworm infection according to District

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Go Cong	0	0	0.00	0	0.00	0	0.00
Cho Gao	1	1	100.00	0	0.00	0	0.00
Tan Phu Dong	2	2	100.00	0	0.00	0	0.00
Cai Lay	0	0	0.00	0	0.00	0	0.00
Cai Be	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>3</b>	<b>3</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Go Cong	50	0	0.00	0	0.00	0	0.00
Cho Gao	51	1	1.96	0	0.00	0	0.00
Tan Phu Dong	73	2	2.74	0	0.00	0	0.00
Cai Lay	51	0	0.00	0	0.00	0	0.00
Cai Be	70	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>295</b>	<b>3</b>	<b>1.02</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Go Cong	0	0	0	0	0	0	0	0
Cho Gao	1	48	0	0	0	0	1	48
Tan Phu Dong	2	84 $\pm$ 36	0	0	0	0	2	84 $\pm$ 36
Cai Lay	0	0	0	0	0	0	0	0
Cai Be	0	0	0	0	0	0	0	0
<b>Total</b>	<b>3</b>	<b>72<math>\pm</math>24</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>72<math>\pm</math>24</b>

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Go Cong	21	0	0.00	29	0	0.00
Cho Gao	20	0	0.00	31	0	0.00
Tan Phu Dong	38	0	0.00	35	0	0.00
Cai Lay	25	0	0.00	26	0	0.00
Cai Be	41	0	0.00	29	0	0.00
<b>Total</b>	<b>145</b>	<b>0</b>	<b>0.00</b>	<b>150</b>	<b>0</b>	<b>0.00</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Go Cong	21	2	9.52	29	0	0.00
Cho Gao	20	0	0.00	31	0	0.00
Tan Phu Dong	38	0	0.00	35	0	0.00
Cai Lay	25	0	0.00	26	0	0.00
Cai Be	41	0	0.00	29	0	0.00
<b>Total</b>	<b>145</b>	<b>2</b>	<b>1.38</b>	<b>150</b>	<b>0</b>	<b>0.00</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Go Cong	21	0	0.00	29	0	0.00
Cho Gao	20	1	5.00	31	0	0.00
Tan Phu Dong	38	1	2.63	35	1	2.86
Cai Lay	25	0	0.00	26	0	0.00

Cai Be	41	0	0.00	29	0	0.00
<b>Total</b>	<b>145</b>	<b>2</b>	<b>1.38</b>	<b>150</b>	<b>1</b>	<b>0.67</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Go Cong	21	2	9.52	29	0	0.00
Cho Gao	20	1	5.00	31	0	0.00
Tan Phu Dong	38	1	2.63	35	1	2.86
Cai Lay	25	0	0.00	26	0	0.00
Cai Be	41	0	0.00	29	0	0.00
<b>Total</b>	<b>145</b>	<b>4</b>	<b>2.76</b>	<b>150</b>	<b>1</b>	<b>0.67</b>

Table 19. The rate of mix-infection of STH of SAC in Tien Giang province

Districts	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Go Cong	2	2	100.00	0	0.00	0	0.00
Cho Gao	1	1	100.00	0	0.00	0	0.00
Tan Phu Dong	2	2	100.00	0	0.00	0	0.00
Cai Lay	0	0	0.00	0	0.00	0	0.00
Cai Be	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>5</b>	<b>5</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 20. The rate of mix-infection of STH of SAC in Tien Giang province

Districts	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Go Cong	50	2	4.00	4	8.00	0	0.00
Cho Gao	51	1	1.96	2	3.92	0	0.00
Tan Phu Dong	73	2	2.74	0	0.00	0	0.00
Cai Lay	51	0	0.00	1	1.96	0	0.00
Cai Be	70	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>295</b>	<b>5</b>	<b>1.69</b>	<b>7</b>	<b>2.37</b>	<b>0</b>	<b>0.00</b>

### 3.17. THE RESULTS OF THE STH SURVEY IN HOCHIMINH PROVINCE

Data analysis of fecal examination for primary school student: Preliminary results

Table 1: Stool sample collection process

Province	Date	District	No. emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Ho Chi Minh	04/4	Hoc Mon	100	51	0
	05/4	Nha Be	100	19	0
	06/4	Can Gio	100	31	0
	07/4	Binh Chanh	100	50	0
	08/4	Can Gio	100	10	0
	09/4	Can Gio	100	9	0
	10/4	Nha Be	100	44	0
	11/4	Quan 8	100	50	0
<b>Total</b>			<b>800</b>	<b>264</b>	<b>0</b>

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
Hoc Mon	51	19.3
Nha Be	63	23.9
Can Gio	50	18.9
Binh Chanh	50	18.9
Quan 8	50	18.9
<b>Total</b>	<b>264</b>	<b>100.0</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	264	100.0
4	0	0
5	0	0
<b>Total</b>	<b>264</b>	<b>100.0</b>

Table 4: General helminth infection rate by districts.

District	No samples	No. General STH infection	Percent (%)
Hoc Mon	51	0	0.00
Nha Be	63	0	0.00
Can Gio	50	0	0.00
Binh Chanh	50	0	0.00
Quan 8	50	0	0.00
<b>Total</b>	<b>264</b>	<b>0</b>	<b>0.00</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Hoc Mon	51	0	0.00	0	0.00	0	0.00	0	0.00
Nha Be	63	0	0.00	0	0.00	0	0.00	0	0.00
Can Gio	50	0	0.00	0	0.00	0	0.00	0	0.00
Binh Chanh	50	0	0.00	0	0.00	0	0.00	0	0.00
Quan 8	50	0	0.00	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>264</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Hoc Mon	0	0	0.00	0	0.00	0	0.00
Nha Be	0	0	0.00	0	0.00	0	0.00
Can Gio	0	0	0.00	0	0.00	0	0.00
Binh Chanh	0	0	0.00	0	0.00	0	0.00
Quan 8	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Hoc Mon	51	0	0.00	0	0.00	0	0.00
Nha Be	63	0	0.00	0	0.00	0	0.00
Can Gio	50	0	0.00	0	0.00	0	0.00

Binh Chanh	50	0	0.00	0	0.00	0	0.00
Quan 8	50	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>264</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Hoc Mon	0	0	0	0	0	0	0	0
Nha Be	0	0	0	0	0	0	0	0
Can Gio	0	0	0	0	0	0	0	0
Binh Chanh	0	0	0	0	0	0	0	0
Quan 8	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 9: Intensity of Trichuris infection by district

Distict	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Hoc Mon	0	0	0.00	0	0.00	0	0.00
Nha Be	0	0	0.00	0	0.00	0	0.00
Can Gio	0	0	0.00	0	0.00	0	0.00
Binh Chanh	0	0	0.00	0	0.00	0	0.00
Quan 8	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 10: Intensity of Trichuris infection by district

Distict	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)

Hoc Mon	51	0	0.00	0	0.00	0	0.00
Nha Be	63	0	0.00	0	0.00	0	0.00
Can Gio	50	0	0.00	0	0.00	0	0.00
Binh Chanh	50	0	0.00	0	0.00	0	0.00
Quan 8	50	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>264</b>	<b>0</b>	0.00	0	<b>0.00</b>	<b>0</b>	0.00

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Hoc Mon	0	0	0	0	0	0	0	0
Nha Be	0	0	0	0	0	0	0	0
Can Gio	0	0	0	0	0	0	0	0
Binh Chanh	0	0	0	0	0	0	0	0
Quan 8	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	0	<b>0</b>

Table 12: Intensity of Hookworm infection according to District

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Hoc Mon	0	0	0.00	0	0.00	0	0.00
Nha Be	0	0	0.00	0	0.00	0	0.00
Can Gio	0	0	0.00	0	0.00	0	0.00
Binh Chanh	0	0	0.00	0	0.00	0	0.00
Quan 8	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Hoc Mon	51	0	0.00	0	0.00	0	0.00
Nha Be	63	0	0.00	0	0.00	0	0.00
Can Gio	50	0	0.00	0	0.00	0	0.00
Binh Chanh	50	0	0.00	0	0.00	0	0.00
Quan 8	50	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>264</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Hoc Mon	0	0	0	0	0	0	0	0
Nha Be	0	0	0	0	0	0	0	0
Can Gio	0	0	0	0	0	0	0	0
Binh Chanh	0	0	0	0	0	0	0	0
Quan 8	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

### 3.18. THE RESULTS OF THE STH SURVEY IN TRAVINH PROVINCE

Data analysis of fecal examination for primary school student: Preliminary results

Table 1: Stool sample collection process

Province	Date	District	No. emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Tra Vinh	1-4/4/2016	Duyen Hai	100	50	0
	4-5/4/2016	Tieu Can	120	53	0
	5-6,9-10/4/2016	Cau Ke	130	52	0
	7-9/4/2016	Cang Long	150	55	0
	6-7,10-11/4/2016	Cau Ngang	130	50	0
	<b>Total</b>			<b>630</b>	<b>260</b>



Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
Duyen Hai	50	19.2
Tieu Can	53	20.4
Cau Ke	52	20.0
Cang Long	55	21.2
Cau Ngang	50	19.2
<b>Total</b>	<b>260</b>	<b>100.0</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	219	84.23
4	41	15.77
5	0	0.0
<b>Total</b>	<b>260</b>	<b>100.0</b>

Table 4: General helminth infection rate by districts.

District	No samples	No. General STH infection	Percent (%)	95 % CI
Duyen Hai	50	14	28.00	0.151-0.409
Cau Ke	52	5	9.62	0.013-0.179
Tieu Can	53	6	11.32	0.025-0.201
Cau Ngang	50	13	26.00	0.134-0.386
Cang Long	55	9	16.36	0.063-0.265
<b>Total</b>	<b>260</b>	<b>47</b>	<b>18.08</b>	<b>0.134-0.228</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Duyen Hai	50	0	0.00	1	2.00	13	26.00	14	28.00
Cau Ke	52	0	0.00	2	3.85	5	9.62	7	13.46
Tieu Can	53	0	0.00	1	1.89	5	9.43	6	11.32
Cau Ngang	50	0	0.00	2	4.00	11	22.00	13	26.00
Cang Long	55	0	0.00	0	0.00	9	16.36	9	16.36
<b>Total</b>	<b>260</b>	<b>0</b>	<b>0.00</b>	<b>6</b>	<b>2.31</b>	<b>43</b>	<b>16.54</b>	<b>49</b>	<b>18.85</b>



Table 9: Intensity of Trichuris infection by district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Duyen Hai	1	1	100.00	0	0.00	0	0.00
Cau Ke	2	2	100.00	0	0.00	0	0.00
Tieu Can	1	1	100.00	0	0.00	0	0.00
Cau Ngang	2	2	100.00	0	0.00	0	0.00
Cang Long	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>6</b>	<b>6</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 10: Intensity of Trichuris infection by district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Duyen Hai	50	1	2.00	0	0.00	0	0.00
Cau Ke	52	2	3.85	0	0.00	0	0.00
Tieu Can	53	1	1.89	0	0.00	0	0.00
Cau Ngang	50	2	4.00	0	0.00	0	0.00
Cang Long	55	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>260</b>	<b>6</b>	<b>2.31</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Duyen Hai	1	48	0	0	0	0	1	48
Cau Ke	2	132 $\pm$ 72	0	0	0	0	2	132 $\pm$ 72
Tieu Can	1	96	0	0	0	0	1	96
Cau Ngang	2	102 $\pm$ 66	0	0	0	0	2	102 $\pm$ 66
Cang Long	0	0	0	0	0	0	0	0
<b>Total</b>	<b>6</b>	<b>102<math>\pm</math>28.19</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>102<math>\pm</math>28.19</b>

Table 12: Intensity of Hookworm infection according to District

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Duyen Hai	13	13	100.00	0	0.00	0	0.00
Cau Ke	5	4	80.00	1	20.00	0	0.00
Tieu Can	5	5	100.00	0	0.00	0	0.00
Cau Ngang	11	11	100.00	0	0.00	0	0.00
Cang Long	9	9	100.00	0	0.00	0	0.00
<b>Total</b>	<b>43</b>	<b>42</b>	<b>97.67</b>	<b>1</b>	<b>2.33</b>	<b>0</b>	<b>0.00</b>

Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Duyen Hai	50	13	26.00	0	0.00	0	0.00
Cau Ke	52	4	7.69	1	1.92	0	0.00
Tieu Can	53	5	9.43	0	0.00	0	0.00
Cau Ngang	50	11	22.00	0	0.00	0	0.00
Cang Long	55	9	16.36	0	0.00	0	0.00
<b>Total</b>	<b>260</b>	<b>42</b>	<b>16.15</b>	<b>1</b>	<b>0.38</b>	<b>0</b>	<b>0.00</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Duyen Hai	13	261 $\pm$ 137.25	0	-	0	0	13	789.6 $\pm$ 519.5
Cau Ke	4	63 $\pm$ 15.78	1	2820	0	0	5	614.4 $\pm$ 551.54
Tieu Can	5	64.8 $\pm$ 10.5	0	0	0	0	5	318 $\pm$ 174
Cau Ngang	11	459.27 $\pm$ 157.61	0	0	0	0	11	612 $\pm$ 313.18
Cang Long	9	105.33 $\pm$ 32.17	0	0	0	0	9	723.16 $\pm$ 385.37
<b>Total</b>	<b>42</b>	<b>237.43<math>\pm</math> 62.50</b>	<b>1</b>	<b>2820</b>	<b>0</b>	<b>0</b>	<b>43</b>	<b>651.75<math>\pm</math> 208.62</b>

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Duyen Hai	19	0	0.00	31	0	0.00
Cau Ke	20	0	0.00	32	0	0.00
Tieu Can	22	0	0.00	31	0	0.00
Cau Ngang	23	0	0.00	27	0	0.00
Cang Long	26	0	0.00	29	0	0.00
<b>Total</b>	<b>110</b>	<b>0</b>	<b>0.00</b>	<b>150</b>	<b>0</b>	<b>0.00</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Duyen Hai	19	0	0.00	31	1	3.23
Cau Ke	20	2	10.00	32	0	0.00
Tieu Can	22	0	0.00	31	1	3.23
Cau Ngang	23	1	4.35	27	1	3.70
Cang Long	26	0	0.00	29	0	0.00
<b>Total</b>	<b>110</b>	<b>3</b>	<b>2.73</b>	<b>150</b>	<b>3</b>	<b>2.00</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Duyen Hai	19	6	31.58	31	7	22.58
Cau Ke	20	2	10.00	32	3	9.38
Tieu Can	22	4	18.18	31	1	3.23
Cau Ngang	23	7	30.43	27	4	14.81
Cang Long	26	2	7.69	29	7	24.14
<b>Total</b>	<b>110</b>	<b>21</b>	<b>19.09</b>	<b>150</b>	<b>22</b>	<b>14.67</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Duyen Hai	19	6	31.58	31	8	25.81
Cau Ke	20	2	10.00	32	3	9.38
Tieu Can	22	4	18.18	31	2	6.45
Cau Ngang	23	8	34.78	27	5	18.52
Cang Long	26	2	7.69	29	7	24.14
<b>Total</b>	<b>110</b>	<b>22</b>	<b>20.00</b>	<b>150</b>	<b>25</b>	<b>16.67</b>

Table 19. The rate of mix-infection of STH of SAC in Tra Vinh

Distrits	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Duyen Hai	14	14	100.00	0	0.00	0	0.00
Cau Ke	5	3	60.00	2	40.00	0	0.00
Tieu Can	6	6	100.00	0	0.00	0	0.00
Cau Ngang	13	13	100.00	0	0.00	0	0.00
Cang Long	9	9	100.00	0	0.00	0	0.00
<b>Total</b>	<b>47</b>	<b>45</b>	<b>95.74</b>	<b>2</b>	<b>4.26</b>	<b>0</b>	<b>0.00</b>

Table 20. The rate of mix-infection of STH of SAC in Tra Vinh

Distrits	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Duyen Hai	50	14	28.00	0	0.00	0	0.00
Cau Ke	52	3	5.77	2	3.85	0	0.00
Tieu Can	53	6	11.32	0	0.00	0	0.00
Cau Ngang	50	13	26.00	0	0.00	0	0.00
Cang Long	55	9	16.36	0	0.00	0	0.00
<b>Total</b>	<b>260</b>	<b>45</b>	<b>17.31</b>	<b>2</b>	<b>0.77</b>	<b>0</b>	<b>0.00</b>

### 3.19. THE RESULTS OF THE STH SURVEY IN TUYEN QUANG PROVINCE

Data analysis of fecal examination for primary school age children.

Table 1: Stool sample collection process

Province	Date	District	No. emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Tuyen Quang	18/1/2016	Tuyen Quang	70		
	19/1/2016	Tuyen Quang		44	0
		Yen Son	70		
	20/1/2016	Yen Son		41	0
		Tuyen Quang		10	0
	21/1/2016	Yen Son		6	0
		Son Duong	70		
22/1/2016	Son Duong		40	0	
	Ham Yen	70			

	23/1/2016	Ham Yen		56	0
		Son Duong		9	
	24/1/2016	Chiem Hoa	70		
	25/1/2016	Chiem Hoa		48	0
	<b>Total</b>			<b>350</b>	<b>254</b>

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
Ham Yen	56	22.05
Son Duong	49	19.29
TuyenQuang	54	21.26
Yen Son	47	18.50
ChiemHoa	48	18.90
<b>Total</b>	<b>254</b>	<b>100.0</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	207	81.5
4	47	18.5
5	0	0.00
<b>Total</b>	<b>254</b>	<b>100.0</b>

Table 4: General helminth infection rate by districts.

District	No samples	No. General STH infection	Percent (%)	95 % CI
Ham Yen	56	2	3.57	-0.014-0.086
Son Duong	49	3	6.12	-0.008-0.131
TuyenQuang	54	2	3.70	-0.015-0.089
Yen Son	47	4	8.51	0.002-0.168
ChiemHoa	48	2	4.17	-0.017-0.100
<b>Total</b>	<b>254</b>	<b>13</b>	<b>5.12</b>	<b>0.024-0.078</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Ham Yen	56	1	1.79	0	0.00	1	1.79	2	3.57
Son Duong	49	1	2.04	0	0.00	2	4.08	3	6.12
TuyenQuang	54	0	0.00	1	1.85	1	1.85	2	3.70
Yen Son	47	2	4.26	0	0.00	2	4.26	4	8.51

ChiemHoa	48	0	0.00	0	0.00	2	4.17	2	4.17
<b>Total</b>	<b>254</b>	<b>4</b>	<b>1.57</b>	<b>1</b>	<b>0.39</b>	<b>8</b>	<b>3.15</b>	<b>13</b>	<b>5.12</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Ham Yen	1	1	100.00	0	0.00	0	0.00
Son Duong	1	1	100.00	0	0.00	0	0.00
TuyenQuang	0	0	0.00	0	0.00	0	0.00
Yen Son	2	2	100.00	0	0.00	0	0.00
ChiemHoa	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>4</b>	<b>4</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Ham Yen	56	1	1.79	0	0.00	0	0.00
Son Duong	49	1	2.04	0	0.00	0	0.00
TuyenQuang	54	0	0.00	0	0.00	0	0.00
Yen Son	47	2	4.26	0	0.00	0	0.00
ChiemHoa	48	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>254</b>	<b>4</b>	<b>1.57</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Ham Yen	1	84	0	0	0	0	1	84
Son Duong	1	36	0	0	0	0	1	36
TuyenQuang	0	0	0	0	0	0	0	0
Yen Son	2	90 $\pm$ 18	0	0	0	0	2	90 $\pm$ 18
ChiemHoa	0	0	0	0	0	0	0	0
<b>Total</b>	<b>4</b>	<b>75<math>\pm</math>15</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>75<math>\pm</math>15</b>



Table 9: Intensity of Trichuris infection by district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Ham Yen	0	0	0.00	0	0.00	0	0.00
Son Duong	0	0	0.00	0	0.00	0	0.00
TuyenQuang	1	1	100.00	0	0.00	0	0.00
Yen Son	0	0	0.00	0	0.00	0	0.00
ChiemHoa	0	0	0.00	1	0.00	0	0.00
<b>Total</b>	<b>1</b>	<b>1</b>	<b>100.00</b>	<b>1</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>

Table 10: Intensity of Trichuris infection by district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Ham Yen	56	0	0.00	0	0.00	0	0.00
Son Duong	49	0	0.00	0	0.00	0	0.00
TuyenQuang	54	1	1.85	0	0.00	0	0.00
Yen Son	47	0	0.00	0	0.00	0	0.00
ChiemHoa	48	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>254</b>	<b>1</b>	<b>0.39</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Ham Yen	0	0	0	0	0	0	0	0
Son Duong	0	0	0	0	0	0	0	0
TuyenQuang	1	36	0	0	0	0	1	36
Yen Son	0	0	0	0	0	0	0	0
ChiemHoa	0	0	0	0	0	0	0	0
<b>Total</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>36</b>

Table 12: Intensity of Hookworm infection according to District

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Ham Yen	1	1	100.00	0	0.00	0	0.00
Son Duong	2	2	100.00	0	0.00	0	0.00
TuyenQuang	1	1	100.00	0	0.00	0	0.00
Yen Son	2	2	100.00	0	0.00	0	0.00
ChiemHoa	2	2	100.00	0	0.00	0	0.00
<b>Total</b>	<b>8</b>	<b>8</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Ham Yen	56	1	1.79	0	0.00	0	0.00
Son Duong	49	2	4.08	0	0.00	0	0.00
TuyenQuang	54	1	1.85	0	0.00	0	0.00
Yen Son	47	2	4.26	0	0.00	0	0.00
ChiemHoa	48	2	4.17	0	0.00	0	0.00
<b>Total</b>	<b>254</b>	<b>8</b>	<b>3.15</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Ham Yen	1	36	0	0	0	0	1	36
Son Duong	2	84 $\pm$ 24	0	0	0	0	2	84 $\pm$ 24
TuyenQuang	1	84	0	0	0	0	1	84
Yen Son	2	60 $\pm$ 24	0	0	0	0	2	60 $\pm$ 24
ChiemHoa	2	48 $\pm$ 12	0	0	0	0	2	48 $\pm$ 12
<b>Total</b>	<b>8</b>	<b>63<math>\pm</math>9.55</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>63<math>\pm</math>9.55</b>

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Ham Yen	29	0	0.00	27	1	3.70

Son Duong	23	1	4.35	26	0	0.00
TuyenQuang	27	0	0.00	27	0	0.00
Yen Son	25	2	8.00	22	0	0.00
ChiemHoa	25	0	0.00	23	0	0.00
<b>Total</b>	<b>129</b>	<b>3</b>	<b>2.33</b>	<b>125</b>	<b>1</b>	<b>0.80</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Ham Yen	29	0	0.00	27	0	0.00
Son Duong	23	0	0.00	26	0	0.00
TuyenQuang	27	1	3.70	27	0	0.00
Yen Son	25	0	0.00	22	0	0.00
ChiemHoa	25	0	0.00	23	0	0.00
<b>Total</b>	<b>129</b>	<b>1</b>	<b>0.78</b>	<b>125</b>	<b>0</b>	<b>0.00</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Ham Yen	29	1	3.45	27	0	0.00
Son Duong	23	1	4.35	26	1	3.85
TuyenQuang	27	0	0.00	27	1	3.70
Yen Son	25	1	4.00	22	1	4.55
ChiemHoa	25	2	8.00	23	0	0.00
<b>Total</b>	<b>129</b>	<b>5</b>	<b>3.88</b>	<b>125</b>	<b>3</b>	<b>2.40</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Ham Yen	29	1	3.45	27	1	3.70
Son Duong	23	2	8.70	26	1	3.85
TuyenQuang	27	1	3.70	27	1	3.70
Yen Son	25	3	12.00	22	1	4.55
ChiemHoa	25	2	8.00	23	0	0.00
<b>Total</b>	<b>129</b>	<b>9</b>	<b>6.98</b>	<b>125</b>	<b>4</b>	<b>3.20</b>

Table 19. The rate of mix-infection of STH of SAC in Tuyen Quang province

Districts	Total No. (+)	Infection with one kind of worm	Infection with two kinds of worms	Infection with three kinds of worms

		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Ham Yen	2	2	100.00	0	0.00	0	0.00
Son Duong	3	3	100.00	0	0.00	0	0.00
TuyenQuang	2	2	100.00	0	0.00	0	0.00
Yen Son	4	4	100.00	0	0.00	0	0.00
ChiemHoa	2	2	100.00	0	0.00	0	0.00
<b>Total</b>	<b>13</b>	<b>13</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 20. The rate of mix-infection of STH of SAC in Tuyen Quang province

Distrits	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Ham Yen	56	2	3.57	0	0.00	0	0.00
Son Duong	49	3	6.12	0	0.00	0	0.00
TuyenQuang	54	2	3.70	0	0.00	0	0.00
Yen Son	47	4	8.51	0	0.00	0	0.00
ChiemHoa	48	2	4.17	0	0.00	0	0.00
<b>Total</b>	<b>254</b>	<b>13</b>	<b>5.12</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

### 3.20. THE RESULTS OF THE STH SURVEY IN VINHLONG PROVINCE

Data analysis of fecal examination for primary school age children.

Table 1: Stool sample collection process

Province	Date	District	No. emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Vinh Long	11-12/4/2016	Vung Liem	120	65	0
	11-12/4/2016	Tra On	120	51	0
	13-16/4/2016	Tam Binh	160	96	0
	14-15/4/2016	Binh Tan	150	52	0
	17-19/4/2016	Long Ho	120	50	0
	<b>Total</b>			<b>670</b>	<b>314</b>

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
Vung Liem	120	20.70
Tra On	120	16.24
Tam Binh	160	30.57
Binh Tan	150	16.56
Long Ho	120	15.92
<b>Total</b>	<b>670</b>	<b>100.0</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	159	50.64
4	108	34.39
	47	14.97
<b>Total</b>	<b>314</b>	<b>100.0</b>

Table 4: General helminth infection rate by districts.

District	No samples	No. General STH infection	Percent (%)	95 % CI
Vung Liem	65	5	7.69	0.010-0.143
Tra On	51	5	9.80	0.013-0.183
Tam Binh	96	7	7.29	0.019-0.126
Binh Tan	52	5	9.62	0.013-0.179
Long Ho	50	4	8.00	0.002-0.158
<b>Total</b>	<b>314</b>	<b>26</b>	<b>8.28</b>	<b>0.052-0.113</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vung Liem	65	0	0.00	0	0.00	5	7.69	5	7.69
Tra On	51	1	1.96	2	3.92	3	5.88	6	11.76
Tam Binh	96	0	0.00	2	2.08	5	5.21	7	7.29
Binh Tan	52	0	0.00	0	0.00	5	9.62	5	9.62
Long Ho	50	0	0.00	0	0.00	4	8.00	4	8.00
<b>Total</b>	<b>314</b>	<b>1</b>	<b>0.32</b>	<b>4</b>	<b>1.27</b>	<b>22</b>	<b>7.01</b>	<b>27</b>	<b>8.60</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vung Liem	0	0	0.00	0	0.00	0	0.00
Tra On	1	1	100.00	0	0.00	0	0.00
Tam Binh	0	0	0.00	0	0.00	0	0.00
Binh Tan	0	0	0.00	0	0.00	0	0.00
Long Ho	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>1</b>	<b>1</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vung Liem	65	0	0.00	0	0.00	0	0.00
Tra On	51	1	1.96	0	0.00	0	0.00
Tam Binh	96	0	0.00	0	0.00	0	0.00
Binh Tan	52	0	0.00	0	0.00	0	0.00
Long Ho	50	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>314</b>	<b>1</b>	<b>0.32</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Vung Liem	0	0	0	0	0	0	0	0
Tra On	1	96	0	0	0	0	1	96
Tam Binh	0	0	0	0	0	0	0	0
Binh Tan	0	0	0	0	0	0	0	0
Long Ho	0	0	0	0	0	0	0	0
<b>Total</b>	<b>1</b>	<b>96</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>69</b>

Table 9: Intensity of Trichuris infection by district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vung Liem	0	0	0.00	0	0.00	0	0.00
Tra On	2	2	100.00	0	0.00	0	0.00
Tam Binh	2	2	100.00	0	0.00	0	0.00
Binh Tan	0	0	0.00	0	0.00	0	0.00
Long Ho	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>4</b>	<b>4</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 10: Intensity of Trichuris infection by district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vung Liem	65	0	0.00	0	0.00	0	0.00
Tra On	51	2	3.92	0	0.00	0	0.00
Tam Binh	96	2	2.08	0	0.00	0	0.00
Binh Tan	52	0	0.00	0	0.00	0	0.00
Long Ho	50	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>314</b>	<b>4</b>	<b>1.27</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Vung Liem	0	0	0	0	0	0	0	0
Tra On	2	42 $\pm$ 18	0	0	0	0	2	42 $\pm$ 18
Tam Binh	2	30 $\pm$ 6	0	0	0	0	2	30 $\pm$ 6
Binh Tan	0	0	0	0	0	0	0	0
Long Ho	0	0	0	0	0	0	0	0
<b>Total</b>	<b>4</b>	<b>36<math>\pm</math>8.49</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>36<math>\pm</math>8.49</b>

Table 12: Intensity of Hookworm infection according to District

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vung Liem	5	5	100.00	0	0.00	0	0.00
Tra On	3	3	100.00	0	0.00	0	0.00
Tam Binh	5	5	100.00	0	0.00	0	0.00
Binh Tan	5	5	100.00	0	0.00	0	0.00
Long Ho	4	4	100.00	0	0.00	0	0.00
<b>Total</b>	<b>22</b>	<b>22</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample	Light infection	Medium infection	Heavy infection
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	Examination	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Vung Liem	65	5	7.69	0	0.00	0	0.00
Tra On	51	3	5.88	1	1.96	0	0.00
Tam Binh	96	5	5.21	0	0.00	0	0.00
Binh Tan	52	5	9.62	0	0.00	0	0.00
Long Ho	50	4	8.00	0	0.00	0	0.00
<b>Total</b>	<b>314</b>	<b>22</b>	<b>7.01</b>	<b>1</b>	<b>0.32</b>	<b>0</b>	<b>0.00</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Vung Liem	5	165.6 $\pm$ 50.26	0	0	0	0	5	165.6 $\pm$ 50.26
Tra On	3	60 $\pm$ 6.93	0	0	0	0	3	60 $\pm$ 6.93
Tam Binh	5	201.6 $\pm$ 92.05	0	0	0	0	5	201.6 $\pm$ 92.05
Binh Tan	5	96 $\pm$ 18.97	0	0	0	0	5	96 $\pm$ 18.97
Long Ho	4	111 $\pm$ 53.75	0	0	0	0	4	111 $\pm$ 53.75
Total	22	133.64 $\pm$ 26.14	0	0	0	0	22	133.64 $\pm$ 26.14

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Vung Liem	29	0	0.00	36	0	0.00
Tra On	22	1	4.55	29	0	0.00
Tam Binh	46	0	0.00	50	0	0.00
Binh Tan	26	0	0.00	26	0	0.00
Long Ho	25	0	0.00	25	0	0.00
<b>Total</b>	<b>148</b>	<b>1</b>	<b>0.68</b>	<b>166</b>	<b>0</b>	<b>0.00</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Vung Liem	29	0	0.00	36	0	0.00
Tra On	22	2	9.09	29	0	0.00
Tam Binh	46	1	2.17	50	1	2.00



Binh Tan	26	0	0.00	26	0	0.00
Long Ho	25	0	0.00	25	0	0.00
<b>Total</b>	<b>148</b>	<b>3</b>	<b>2.03</b>	<b>166</b>	<b>1</b>	<b>0.60</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Vung Liem	29	0	0.00	36	5	13.89
Tra On	22	2	9.09	29	1	3.45
Tam Binh	46	1	2.17	50	4	8.00
Binh Tan	26	2	7.69	26	3	11.54
Long Ho	25	0	0.00	25	4	16.00
<b>Total</b>	<b>148</b>	<b>5</b>	<b>3.38</b>	<b>166</b>	<b>17</b>	<b>10.24</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Vung Liem	29	0	0.00	36	5	13.89
Tra On	22	4	18.18	29	1	3.45
Tam Binh	46	2	4.35	50	5	10.00
Binh Tan	26	2	7.69	26	3	11.54
Long Ho	25	0	0.00	25	4	16.00
<b>Total</b>	<b>148</b>	<b>8</b>	<b>5.41</b>	<b>166</b>	<b>18</b>	<b>10.84</b>

Table 19. The rate of mix-infection of STH of SAC in Vinh Long

Districts	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Vung Liem	5	5	100.00	0	0.00	0	0.00
Tra On	5	4	80.00	1	20.00	0	0.00
Tam Binh	7	7	100.00	0	0.00	0	0.00
Binh Tan	5	5	100.00	0	0.00	0	0.00
Long Ho	4	4	100.00	0	0.00	0	0.00
<b>Total</b>	<b>26</b>	<b>25</b>	<b>96.15</b>	<b>1</b>	<b>3.85</b>	<b>0</b>	<b>0.00</b>

Table 20. The rate of mix-infection of STH of SAC in Vinh Long

Districts	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Vung Liem	65	5	7.69	0	0.00	0	0.00
Tra On	51	4	7.84	1	1.96	0	0.00
Tam Binh	96	7	7.29	0	0.00	0	0.00
Binh Tan	52	5	9.62	0	0.00	0	0.00
Long Ho	50	4	8.00	0	0.00	0	0.00
<b>Total</b>	<b>314</b>	<b>25</b>	<b>7.96</b>	<b>1</b>	<b>0.32</b>	<b>0</b>	<b>0.00</b>

### 3.21. THE RESULTS OF THE STH SURVEY IN VINHPHUC PROVINCE

Data analysis of fecal examination for primary school age children.

Table 1: Stool sample collection process

Province	Date	District	No. emitted plastic bags	No. Examined stool samples	No. Rejected stool samples
Vinh Phuc	9-10/5/2016	Lap Thach	75	52	0
	11/5/2016	Phuc Yen	70	54	0
	12-13/5/2016	Song Lo	75	52	0
	14-15/5/2016	Vinh Tuong	80	53	0
	16/5/2016	Vinh Yen	75	50	0
	<b>Total</b>			<b>375</b>	<b>261</b>

Table 2: Distribution of participant samples according to districts

District	No. sample	Percent %
Lap Thach	52	19.9
Phuc Yen	54	20.7
Song Lo	52	19.9
Vinh Tuong	53	20.3
Vinh Yen	50	19.2
<b>Total</b>	<b>261</b>	<b>100.0</b>

Table 3: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	243	93.10
4	18	6.90
<b>Total</b>	<b>261</b>	<b>100.0</b>

Table 4: General helminth infection rate by districts.

District	No samples	No. General STH infection	Percent (%)	95 % CI
Lap Thach	52	2	3.85	-0.016-0.093
Phuc Yen	54	0	0.00	
Song Lo	52	0	0.00	
Vinh Tuong	53	0	0.00	
Vinh Yen	50	0	0.00	
<b>Total</b>	<b>261</b>	<b>2</b>	<b>0.77</b>	<b>-0.003-0.018</b>

Table 5: Rate of helminth infection according to districts.

District	No. sample Examination	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Lap Thach	52	1	1.92	0	0.00	2	3.85	3	5.77
Phuc Yen	54	0	0.00	0	0.00	0	0.00	0	0.00
Song Lo	52	0	0.00	0	0.00	0	0.00	0	0.00
Vinh Tuong	53	0	0.00	0	0.00	0	0.00	0	0.00
Vinh Yen	50	0	0.00	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>261</b>	<b>1</b>	<b>0.38</b>	<b>0</b>	<b>0.00</b>	<b>2</b>	<b>0.77</b>	<b>3</b>	<b>1.15</b>

Table 6: Intensity of Ascaris infection according to district

District	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Lap Thach	1	1	100.00	0	0.00	0	0.00
Phuc Yen	0	0	0.00	0	0.00	0	0.00
Song Lo	0	0	0.00	0	0.00	0	0.00
Vinh Tuong	0	0	0.00	0	0.00	0	0.00
Vinh Yen	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>1</b>	<b>1</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 7: Intensity of Ascaris infection according to district

District	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Lap Thach	52	1	1.92	0	0.00	0	0.00
Phuc Yen	54	0	0.00	0	0.00	0	0.00

Song Lo	52	0	0.00	0	0.00	0	0.00
Vinh Tuong	53	0	0.00	0	0.00	0	0.00
Vinh Yen	50	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>261</b>	<b>1</b>	<b>0.38</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 8: Mean of Intensity of Ascaris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Lap Thach	1	612	0	0	0	0	1	612
Phuc Yen	0	0	0	0	0	0	0	0
Song Lo	0	0	0	0	0	0	0	0
Vinh Tuong	0	0	0	0	0	0	0	0
Vinh Yen	0	0	0	0	0	0	0	0
<b>Total</b>	<b>1</b>	<b>612</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>612</b>

Table 9: Intensity of Trichuris infection by district

Distict	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Lap Thach	0	0	0.00	0	0.00	0	0.00
Phuc Yen	0	0	0.00	0	0.00	0	0.00
Song Lo	0	0	0.00	0	0.00	0	0.00
Vinh Tuong	0	0	0.00	0	0.00	0	0.00
Vinh Yen	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>0</b>	<b>0</b>	0.00	0	<b>0.00</b>	0	<b>0.00</b>

Table 10: Intensity of Trichuris infection by district

Distict	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Lap Thach	52	0	0.00	0	0.00	0	0.00
Phuc Yen	54	0	0.00	0	0.00	0	0.00
Song Lo	52	0	0.00	0	0.00	0	0.00
Vinh Tuong	53	0	0.00	0	0.00	0	0.00
Vinh Yen	50	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>261</b>	<b>0</b>	0.00	0	0.00	<b>0</b>	0.00

Table 11: Mean of Intensity of Trichuris infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
Lap Thach	0	0	0	0	0	0	0	0
Phuc Yen	0	0	0	0	0	0	0	0
Song Lo	0	0	0	0	0	0	0	0
Vinh Tuong	0	0	0	0	0	0	0	0
Vinh Yen	0	0	0	0	0	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Table 12: Intensity of Hookworm infection according to District

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Lap Thach	2	2	100.00	0	0.00	0	0.00
Phuc Yen	0	0	0.00	0	0.00	0	0.00
Song Lo	0	0	0.00	0	0.00	0	0.00
Vinh Tuong	0	0	0.00	0	0.00	0	0.00
Vinh Yen	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>2</b>	<b>2</b>	<b>100.00</b>	<b>0</b>	<b>0.00</b>	<b>0</b>	<b>0.00</b>

Table 13: Intensity of Hookworm infection according to District

Provinces	No. sample Examination	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
Lap Thach	52	2	3.85	0	0.00	0	0.00
Phuc Yen	54	0	0.00	1	1.85	0	0.00
Song Lo	52	0	0.00	0	0.00	0	0.00
Vinh Tuong	53	0	0.00	0	0.00	0	0.00
Vinh Yen	50	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>261</b>	<b>2</b>	<b>0.77</b>	<b>1</b>	<b>0.38</b>	<b>0</b>	<b>0.00</b>

Table 14: Mean of Intensity of Hookworm infection according to district

District	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD

Lap Thach	1	204 ±120	0	0	0	0	1	204 ±120
Phuc Yen	0	0	0	0	0	0	0	0
Song Lo	0	0	0	0	0	0	0	0
Vinh Tuong	0	0	0	0	0	0	0	0
Vinh Yen	0	0	0	0	0	0	0	0
<b>Total</b>	<b>1</b>	<b>204 ±120</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>204 ±120</b>

Table 15: Rate of Ascaris infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Lap Thach	30	0	0.00	22	1	4.55
Phuc Yen	27	0	0.00	27	0	0.00
Song Lo	24	0	0.00	28	0	0.00
Vinh Tuong	29	0	0.00	24	0	0.00
Vinh Yen	31	0	0.00	19	0	0.00
<b>Total</b>	<b>141</b>	<b>0</b>	<b>0.00</b>	<b>120</b>	<b>1</b>	<b>0.83</b>

Table 16: Rate of Trichuris infection in boys and girls by district

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Lap Thach	30	0	0.00	22	0	0.00
Phuc Yen	27	0	0.00	27	0	0.00
Song Lo	24	0	0.00	28	0	0.00
Vinh Tuong	29	0	0.00	24	0	0.00
Vinh Yen	31	0	0.00	19	0	0.00
<b>Total</b>	<b>141</b>	<b>0</b>	<b>0.00</b>	<b>120</b>	<b>0</b>	<b>0.00</b>

Table 17: Rate of Hookworm infection in boys and girls by district

District	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Lap Thach	30	1	3.33	22	1	4.55
Phuc Yen	27	0	0.00	27	0	0.00
Song Lo	24	0	0.00	28	0	0.00
Vinh Tuong	29	0	0.00	24	0	0.00
Vinh Yen	31	0	0.00	19	0	0.00
<b>Total</b>	<b>141</b>	<b>1</b>	<b>0.71</b>	<b>120</b>	<b>1</b>	<b>0.83</b>

Table 18: Rate of general helminth infection in boys and girls by districts

Districts	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
Lap Thach	30	1	3.33	22	1	4.55
Phuc Yen	27	0	0.00	27	0	0.00
Song Lo	24	0	0.00	28	0	0.00
Vinh Tuong	29	0	0.00	24	0	0.00
Vinh Yen	31	0	0.00	19	0	0.00
<b>Total</b>	<b>141</b>	<b>1</b>	<b>0.71</b>	<b>120</b>	<b>1</b>	<b>0.83</b>

Table 19. The rate of mix-infection of STH of SAC in Vinh Phuc province

Districts	Total No. (+)	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Lap Thach	2	1	50.00	1	50.00	0	0.00
Phuc Yen	0	0	0.00	0	0.00	0	0.00
Song Lo	0	0	0.00	0	0.00	0	0.00
Vinh Tuong	0	0	0.00	0	0.00	0	0.00
Vinh Yen	0	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>2</b>	<b>1</b>	<b>50.00</b>	<b>1</b>	<b>50.00</b>	<b>0</b>	<b>0.00</b>

Table 20. The rate of mix-infection of STH of SAC in Vinh Phuc province

Districts	Total Examination	Infection with one kind of worm		Infection with two kinds of worms		Infection with three kinds of worms	
		No. (+)	(%)	No. (+)	(%)	No. (+)	(%)
Lap Thach	52	1	1.92	1	1.92	0	0.00
Phuc Yen	54	0	0.00	0	0.00	0	0.00
Song Lo	52	0	0.00	0	0.00	0	0.00
Vinh Tuong	53	0	0.00	0	0.00	0	0.00
Vinh Yen	50	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>261</b>	<b>1</b>	<b>0.38</b>	<b>1</b>	<b>0.38</b>	<b>0</b>	<b>0.00</b>

## II. THE RESULTS OF THE 1<sup>st</sup> ROUND OF SURVEY (21 NORTHERN PROVINCES)

Data analysis of fecal examination for primary school children

Table 1: Distribution of participant samples according to provinces

Provinces	No. sample	Percent %
An Giang	274	4.47
Bac Lieu	335	5.46
Binh Duong	326	5.31
Binh Thuan	284	4.63
Can Tho	286	4.66
Da Nang	255	4.16
Ha Noi	418	6.81
Hai Duong	277	4.52
Hai Phong	361	5.88
Hau Giang	354	5.77
Hung Yen	277	4.52
Long An	262	4.27
Ninh Binh	252	4.11
Quang Ninh	256	4.17
Soc Trang	270	4.40
Tien Giang	295	4.81
Ho Chi Minh	264	4.30
Tra Vinh	260	4.24
Tuyen Quang	254	4.14
Vinh Long	314	5.12
Vinh Phuc	261	4.25
<b>Total</b>	<b>6.135</b>	<b>100.0</b>

Table 2: Distribution of participant samples according to grade

Grade	No. sample	Percent %
3	5.271	85.92
4	722	11.77
5	142	2.31
<b>Total</b>	<b>6.135</b>	<b>100.0</b>



Table 3: General helminth infection rate of by provinces.

Provinces	No. sample	No. General infection	Percent (%)	95 % CI
An Giang	274	1	0.36	-0.004-0.011
Bac Lieu	335	13	3.88	0.018-0.059
Binh Duong	326	14	4.29	0.021-0.065
Binh Thuan	284	49	17.25	0.129-0.217
Can Tho	286	4	1.40	0.000-0.028
Da Nang	255	3	1.18	-0.001-0.025
Ha Noi	418	14	3.35	0.016-0.051
Hai Duong	277	8	2.89	0.009-0.049
Hai Phong	361	36	9.97	0.069-0.131
Hau Giang	354	1	0.28	-0.003-0.008
Hung Yen	277	28	10.11	0.066-0.137
Long An	262	6	2.29	0.005-0.041
Ninh Binh	252	44	17.46	0.128-0.222
Quang Ninh	256	52	20.31	0.154-0.253
Soc Trang	270	26	9.63	0.061-0.132
Tien Giang	295	5	1.69	0.0020.032
Ho Chi Minh	264	0	0.00	
Tra Vinh	260	47	18.08	0.134-0.228
Tuyen Quang	254	13	5.12	0.024-0.078
Vinh Long	314	26	8.28	0.052-0.113
Vinh Phuc	261	2	0.77	-0.003-0.018
<b>Total</b>	<b>6.135</b>	<b>392</b>	<b>6.39</b>	<b>0.058-0.070</b>

Table 4: Rate of helminth infection according to provinces.

Provinces	No. sample	Ascaris		Trichuris		Hookworm		Overall STH	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
An Giang	274	0	0.00	1	0.36	0	0.00	1	0.36
Bac Lieu	335	6	1.79	0	0.00	7	2.09	13	3.88
Binh Duong	326	2	0.61	1	0.31	11	3.37	14	4.29
Binh Thuan	284	1	0.35	0	0.00	48	16.90	49	17.25
Can Tho	286	0	0.00	3	1.05	1	0.35	4	1.40
Da Nang	255	0	0.00	0	0.00	3	1.18	3	1.18
Ha Noi	418	1	0.24	13	3.11	0	0.00	14	3.35

Hai Duong	277	1	0.36	7	2.53	0	0.00	8	2.89
Hai Phong	361	6	1.66	19	5.26	12	3.32	36	9.97
Hau Giang	354	0	0.00	1	0.28	0	0.00	1	0.28
Hung Yen	277	12	4.33	16	5.78	1	0.36	28	10.11
Long An	262	0	0.00	1	0.38	5	1.91	6	2.29
Ninh Binh	252	13	5.16	36	14.29	0	0.00	44	17.46
Quang Ninh	256	12	4.69	42	16.41	5	1.95	52	20.31
Soc Trang	270	5	1.85	0	0.00	21	7.78	26	9.63
Tien Giang	295	0	0.00	2	0.68	3	1.02	5	1.69
Ho Chi Minh	264	0	0.00	0	0.00	0	0.00	0	0.00
Tra Vinh	260	0	0.00	6	2.31	43	16.54	47	18.08
Tuyen Quang	254	4	1.57	1	0.39	8	3.15	13	5.12
Vinh Long	314	1	0.32	4	1.27	22	7.01	26	8.28
Vinh Phuc	261	1	0.38	0	0.00	2	0.77	2	0.77
<b>Total</b>	<b>6135</b>	<b>65</b>	<b>1.06</b>	<b>153</b>	<b>2.49</b>	<b>192</b>	<b>3.13</b>	<b>392</b>	<b>6.39</b>

Table 5: Intensity of Ascaris infection according to provinces

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
An Giang	0	0	0.00	0	0.00	0	0.00
Bac Lieu	6	6	100.0	0	0.00	0	0.00
Binh Duong	2	2	100.0	0	0.00	0	0.00
Binh Thuan	1	1	100.0	0	0.00	0	0.00
Can Tho	0	0	0.00	0	0.00	0	0.00
Da Nang	0	0	0.00	0	0.00	0	0.00
Ha Noi	1	1	100.0	0	0.00	0	0.00
Hai Duong	1	1	100.0	0	0.00	0	0.00
Hai Phong	6	6	100.0	0	0.00	0	0.00
Hau Giang	0	0	0.00	0	0.00	0	0.00
Hung Yen	12	12	100.0	0	0.00	0	0.00
Long An	0	0	0.00	0	0.00	0	0.00
Ninh Binh	13	10	76.92	2	15.38	1	7.69
Quang Ninh	12	12	100.0	0	0.00	0	0.00
Soc Trang	5	4	80.00	1	20.00	0	0.00
Tien Giang	0	0	0.00	0	0.00	0	0.00

Ho Chi Minh	0	0	0.00	0	0.00	0	0.00
Tra Vinh	0	0	0.00	0	0.00	0	0.00
Tuyen Quang	4	4	100.0	0	0.00	0	0.00
Vinh Long	1	1	100.0	0	0.00	0	0.00
Vinh Phuc	1	1	100.0	0	0.00	0	0.00
<b>Total</b>	<b>65</b>	<b>61</b>	<b>93.85</b>	<b>3</b>	<b>4.62</b>	<b>1</b>	<b>1.54</b>

Table 6: Intensity of Ascaris infection according to provinces

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
An Giang	274	0	0.00	0	0.00	0	0.00
Bac Lieu	335	6	1.79	0	0.00	0	0.00
Binh Duong	326	2	0.61	0	0.00	0	0.00
Binh Thuan	284	1	0.35	0	0.00	0	0.00
Can Tho	286	0	0.00	0	0.00	0	0.00
Da Nang	255	0	0.00	0	0.00	0	0.00
Ha Noi	418	1	0.24	0	0.00	0	0.00
Hai Duong	277	1	0.36	0	0.00	0	0.00
Hai Phong	361	6	1.66	0	0.00	0	0.00
Hau Giang	354	0	0.00	0	0.00	0	0.00
Hung Yen	277	12	4.33	0	0.00	0	0.00
Long An	262	0	0.00	0	0.00	0	0.00
Ninh Binh	252	10	3.97	2	0.79	1	0.40
Quang Ninh	256	12	4.69	0	0.00	0	0.00
Soc Trang	270	4	1.48	1	0.37	0	0.00
Tien Giang	295	0	0.00	0	0.00	0	0.00
Ho Chi Minh	264	0	0.00	0	0.00	0	0.00
Tra Vinh	260	0	0.00	0	0.00	0	0.00
Tuyen Quang	254	4	1.57	0	0.00	0	0.00
Vinh Long	314	1	0.32	0	0.00	0	0.00
Vinh Phuc	261	1	0.38	0	0.00	0	0.00
<b>Total</b>	<b>6.135</b>	<b>61</b>	<b>0.99</b>	<b>3</b>	<b>0.05</b>	<b>1</b>	<b>0.02</b>

Table 7: Mean of Intensity of *Ascaris* infection according to provinces

Provinces	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
An Giang	0	0	0	0	0	0	0	0
Bac Lieu	6	48 $\pm$ 8.2	0	0	0	0	6	48 $\pm$ 8.2
Binh Duong	2	108 $\pm$ 60	0	0	0	0	2	108 $\pm$ 60
Binh Thuan	1	3012	0	0	0	0	1	3012
Can Tho	0	0	0	0	0	0	0	0
Da Nang	0	0	0	0	0	0	0	0
Ha Noi	1	24	0	0	0	0	1	24
Hai Duong	1	108	0	0	0	0	1	108
Hai Phong	6	62 $\pm$ 10.5	0	0	0	0	6	62 $\pm$ 10.5
Hau Giang	0	0	0	0	0	0	0	0
Hung Yen	12	279 $\pm$ 111	0	0	0	0	12	279 $\pm$ 111
Long An	0	0	0	0	0	0	0	0
Ninh Binh	10	928.8 $\pm$ 353.5	2	20280 $\pm$ 9648	1	57000	13	8219.07 $\pm$ 4668.09
Quang Ninh	12	601 $\pm$ 215.6	0	0	0	0	12	601 $\pm$ 215.6
Soc Trang	4	93 $\pm$ 25.6	1	7656	0	0	5	1606.6 $\pm$ 1512.7
Tien Giang	0	0	0	0	0	0	0	0
Ho Chi Minh	0	0	0	0	0	0	0	0
Tra Vinh	0	0	0	0	0	0	0	0
Tuyen Quang	4	75 $\pm$ 15	0	0	0	0	4	75 $\pm$ 15
Vinh Long	1	96	0	0	0	0	1	96
Vinh Phuc	1	612	0	0	0	0	1	612
<b>Total</b>	<b>61</b>	<b>413.9 <math>\pm</math>93.6</b>	<b>3</b>	<b>16072 <math>\pm</math>6981.06</b>	<b>1</b>	<b>57000</b>	<b>65</b>	<b>2007.14 <math>\pm</math>992.4</b>

Table 8: Intensity of Trichuris infection by provinces

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
An Giang	1	1	100.0	0	0.00	0	0.00
Bac Lieu	0	0	0.00	0	0.00	0	0.00
Binh Duong	1	1	100.0	0	0.00	0	0.00
Binh Thuan	0	0	0.00	0	0.00	0	0.00
Can Tho	3	3	100.0	0	0.00	0	0.00
Da Nang	0	0	0.00	0	0.00	0	0.00
Ha Noi	13	13	100.0	0	0.00	0	0.00
Hai Duong	7	7	100.0	0	0.00	0	0.00
Hai Phong	19	17	89.47	2	10.53	0	0.00
Hau Giang	1	1	0.00	0	0.00	0	0.00
Hung Yen	16	16	100.0	0	0.00	0	0.00
Long An	1	1	0.00	0	0.00	0	0.00
Ninh Binh	36	35	97.22	1	2.78	0	0.00
Quang Ninh	42	41	97.62	1	2.38	0	0.00
Soc Trang	0	0	0.00	0	0.00	0	0.00
Tien Giang	2	2	0.00	0	0.00	0	0.00
Ho Chi Minh	0	0	0.00	0	0.00	0	0.00
Tra Vinh	6	6	0.00	0	0.00	0	0.00
Tuyen Quang	1	1	100.0	0	0.00	0	0.00
Vinh Long	4	4	100.0	0	0.00	0	0.00
Vinh Phuc	0	0	0.00	0	0.00	0	0.00
Total	153	149	97.39	4	2.61	0	0.00

Table 9: Intensity of Trichuris infection by provinces

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
An Giang	274	1	0.36	0	0.00	0	0.00
Bac Lieu	335	0	0.00	0	0.00	0	0.00
Binh Duong	326	1	0.31	0	0.00	0	0.00
Binh Thuan	284	0	0.00	0	0.00	0	0.00
Can Tho	286	3	1.05	0	0.00	0	0.00

Da Nang	255	0	0.00	0	0.00	0	0.00
Ha Noi	418	13	3.11	0	0.00	0	0.00
Hai Duong	277	7	2.53	0	0.00	0	0.00
Hai Phong	361	17	4.71	2	0.55	0	0.00
Hau Giang	354	1	0.28	0	0.00	0	0.00
Hung Yen	277	16	5.78	0	0.00	0	0.00
Long An	262	1	0.38	0	0.00	0	0.00
Ninh Binh	252	35	13.89	1	0.40	0	0.00
Quang Ninh	256	41	16.02	1	0.39	0	0.00
Soc Trang	270	0	0.00	0	0.00	0	0.00
Tien Giang	295	2	0.68	0	0.00	0	0.00
Ho Chi Minh	264	0	0.00	0	0.00	0	0.00
Tra Vinh	260	6	2.31	0	0.00	0	0.00
Tuyen Quang	254	1	0.39	0	0.00	0	0.00
Vinh Long	314	4	1.27	0	0.00	0	0.00
Vinh Phuc	261	0	0.00	0	0.00	0	0.00
<b>Total</b>	<b>6.135</b>	<b>149</b>	<b>2.43</b>	<b>4</b>	<b>0.07</b>	<b>0</b>	<b>0.00</b>

Table 10: Mean of Intensity of Trichuris infection according to provinces

Provinces	Light infection		Medium infection		Heavy infection		Total	
	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD	No. sample (+)	Mean $\pm$ SD
An Giang	1	240	0	0	0	0	1	240
Bac Lieu	0	0	0	0	0	0	0	0
Binh Duong	1	48	0	0	0	0	1	48
Binh Thuan	0	0	0	0	0	0	0	0
Can Tho	3	44 $\pm$ 8	0	0	0	0	3	44 $\pm$ 8
Da Nang	0	0	0	0	0	0	0	0
Ha Noi	13	120.9 $\pm$ 49.1	0	0	0	0	13	120.9 $\pm$ 49.1
Hai Duong	7	264 $\pm$ 101.07	0	0	0	0	7	264 $\pm$ 101.07

Hai Phong	17	163.06± 34.7	2	1752± 288	0	0	19	330.31± 121.04
Hau Giang	1	72	0	0	0	0	1	72
Hung Yen	16	79.5± 17.3	0	0	0	0	16	79.5± 17.3
Long An	1	48	0	0	0	0	1	48
Ninh Binh	35	170.4± 22.98	1	1404	0	0	36	204.66± 40.90
Quang Ninh	41	76.39±10.96	1	1692	0	0	42	114.85±39.9
Soc Trang	0	0	0	0	0	0	0	0
Tien Giang	2	96±24	0	0	0	0	2	96±24
Ho Chi Minh	0	0	0	0	0	0	0	0
Tra Vinh	6	102±28.1	0	0	0	0	6	102±28.1
Tuyen Quang	1	36	0	0	0	0	1	36
Vinh Long	4	36±8.48	0	0	0	0	4	36±8.48
Vinh Phuc	0	0	0	0	0	0	0	0
<b>Total</b>	<b>149</b>	<b>121.36±10.67</b>	<b>4</b>	<b>1650.144.04</b>	<b>0</b>	<b>0</b>	<b>153</b>	<b>161.33±22.58</b>

Table 11: Intensity of Hookworm infection according to provinces

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
An Giang	0	0	0.00	0	0.00	0	0.00
Bac Lieu	7	7	100.0	0	0.00	0	0.00
Binh Duong	11	10	90.91	0	0.00	1	9.09
Binh Thuan	48	45	93.75	1	2.08	2	4.17
Can Tho	1	1	100.0	0	0.00	0	0.00
Da Nang	3	3	100.0	0	0.00	0	0.00
Ha Noi	0	0	0.00	0	0.00	0	0.00

Hai Duong	0	0	0.00	0	0.00	0	0.00
Hai Phong	12	12	100.0	0	0.00	0	0.00
Hau Giang	0	0	0.00	0	0.00	0	0.00
Hung Yen	1	1	100.0	0	0.00	0	0.00
Long An	5	5	100.0	0	0.00	0	0.00
Ninh Binh	0	0	0.00	0	0.00	0	0.00
Quang Ninh	5	5	100.0	0	0.00	0	0.00
Soc Trang	21	18	85.71	1	4.76	2	9.52
Tien Giang	3	3	100.0	0	0.00	0	0.00
Ho Chi Minh	0	0	0.00	0	0.00	0	0.00
Tra Vinh	43	42	97.67	1	2.33	0	0.00
Tuyen Quang	8	8	100.0	0	0.00	0	0.00
Vinh Long	22	22	100.0	0	0.00	0	0.00
Vinh Phuc	2	2	100.0	0	0.00	0	0.00
Total	192	184	95.83	3	1.56	5	2.60

Table 12: Intensity of Hookworm infection according to provinces

Provinces	No. sample (+)	Light infection		Medium infection		Heavy infection	
		No. (+)	Percent (+)	No. (+)	Percent (+)	No. (+)	Percent (+)
An Giang	274	0	0.00	0	0.00	0	0.00
Bac Lieu	335	7	2.09	0	0.00	0	0.00
Binh Duong	326	10	3.07	0	0.00	1	0.31
Binh Thuan	284	45	15.85	1	0.35	2	0.70
Can Tho	286	1	0.35	0	0.00	0	0.00
Da Nang	255	3	1.18	0	0.00	0	0.00
Ha Noi	418	0	0.00	0	0.00	0	0.00
Hai Duong	277	0	0.00	0	0.00	0	0.00
Hai Phong	361	12	3.32	0	0.00	0	0.00
Hau Giang	354	0	0.00	0	0.00	0	0.00
Hung Yen	277	1	0.36	0	0.00	0	0.00
Long An	262	5	1.91	0	0.00	0	0.00
Ninh Binh	252	0	0.00	0	0.00	0	0.00
Quang Ninh	256	5	1.95	0	0.00	0	0.00
Soc Trang	270	18	6.67	1	0.37	2	0.74
Tien Giang	295	3	1.02	0	0.00	0	0.00





Minh								
Tra Vinh	42	237.43±62.50	1	2820	0	0	43	297.48±85.62
Tuyen Quang	8	63±9.55	0	0	0	0	8	63±9.55
Vinh Long	22	133.63±26.14	0	0	0	0	22	133.63±26.14
Vinh Phuc	2	204±120	0	0	0	0	2	
<b>Total</b>	<b>184</b>	<b>204.46±21.93</b>	<b>3</b>	<b>2604±216</b>	<b>5</b>	<b>0</b>	<b>192</b>	<b>8484±823.74</b>

Table 11: Rate of Ascaris infection in boys and girls by province

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
An Giang	131	0	0.00	143	0	0.00
Bac Lieu	152	3	1.97	183	3	1.64
Binh Duong	186	1	0.54	140	1	0.71
Binh Thuan	126	0	0.00	158	1	0.63
Can Tho	174	0	0.00	112	0	0.00
Da Nang	134	0	0.00	121	0	0.00
Ha Noi	221	0	0.00	197	1	0.51
Hai Duong	146	1	0.68	131	0	0.00
Hai Phong	182	1	0.55	179	5	2.79
Hau Giang	181	0	0.00	173	0	0.00
Hung Yen	121	2	1.65	156	10	6.41
Long An	128	0	0.00	134	0	0.00
Ninh Binh	129	5	3.88	123	8	6.50
Quang Ninh	142	6	4.23	114	6	5.26
Soc Trang	134	4	2.99	136	1	0.74
Tien Giang	145	0	0.00	150	0	0.00
Ho Chi Minh	132	0	0.00	132	0	0.00
Tra Vinh	110	0	0.00	150	0	0.00
Tuyen Quang	129	3	2.33	125	1	0.80
Vinh Long	148	1	0.68	166	0	0.00
Vinh Phuc	141	0	0.00	120	1	0.83
<b>Total</b>	<b>3.092</b>	<b>27</b>	<b>0.87</b>	<b>3.043</b>	<b>38</b>	<b>1.25</b>

Table 12: Rate of Trichuris infection in boys and girls by province

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
An Giang	131	0	0.00	143	1	0.70
Bac Lieu	152	0	0.00	183	0	0.00
Binh Duong	186	1	0.54	140	0	0.00
Binh Thuan	126	0	0.00	158	0	0.00
Can Tho	174	3	1.72	112	0	0.00
Da Nang	134	0	0.00	121	0	0.00
Ha Noi	221	7	3.17	197	6	3.05
Hai Duong	146	4	2.74	131	3	2.29
Hai Phong	182	8	4.40	179	11	6.15
Hau Giang	181	1	0.55	173	0	0.00
Hung Yen	121	4	3.31	156	12	7.69
Long An	128	0	0.00	134	1	0.75
Ninh Binh	129	14	10.85	123	22	17.89
Quang Ninh	142	23	16.20	114	19	16.67
Soc Trang	134	0	0.00	136	0	0.00
Tien Giang	145	2	1.38	150	0	0.00
Ho Chi Minh	132	0	0.00	132	0	0.00
Tra Vinh	110	3	2.73	150	3	2.00
Tuyen Quang	129	1	0.78	125	0	0.00
Vinh Long	148	3	2.03	166	1	0.60
Vinh Phuc	141	0	0.00	120	0	0.00
<b>Total</b>	<b>3.092</b>	<b>74</b>	<b>2.39</b>	<b>3.043</b>	<b>79</b>	<b>2.60</b>

Table 13: Rate of Hookworm infection in boys and girls by province

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
An Giang	131	0	0.00	143	0	0.00
Bac Lieu	152	4	2.63	183	3	1.64
Binh Duong	186	7	3.76	140	4	2.88
Binh Thuan	126	26	20.63	158	22	13.92
Can Tho	174	0	0.00	112	1	0.89
Da Nang	134	1	0.75	121	2	1.65
Ha Noi	221	0	0.00	197	0	0.00
Hai Duong	146	0	0.00	131	0	0.00
Hai Phong	182	7	3.85	179	5	2.79

Hau Giang	181	0	0.00	173	0	0.00
Hung Yen	121	0	0.00	156	1	0.64
Long An	128	3	2.34	134	2	1.49
Ninh Binh	129	0	0.00	123	0	0.00
Quang Ninh	142	2	1.41	114	3	2.63
Soc Trang	134	12	8.96	136	9	6.62
Tien Giang	145	2	1.38	150	1	0.67
Ho Chi Minh	132	0	0.00	132	0	0.00
Tra Vinh	110	21	19.09	150	22	14.67
Tuyen Quang	129	5	3.88	125	3	2.40
Vinh Long	148	5	3.38	166	17	10.24
Vinh Phuc	141	1	0.71	120	1	0.83
<b>Total</b>	<b>3.092</b>	<b>96</b>	<b>3.10</b>	<b>3.043</b>	<b>96</b>	<b>3.15</b>

Table 14: Rate of general helminth infection in boys and girls by provinces

Provinces	Boys			Girls		
	n	No. (+)	% (+)	n	No. (+)	% (+)
An Giang	131	0	0.00	143	1	0.70
Bac Lieu	152	7	4.61	183	6	3.28
Binh Duong	186	9	4.84	140	5	3.57
Binh Thuan	126	26	20.63	158	23	14.56
Can Tho	174	3	1.72	112	1	0.89
Da Nang	134	1	0.75	121	2	1.65
Ha Noi	221	7	3.17	197	7	3.55
Hai Duong	146	5	3.42	131	3	2.29
Hai Phong	182	16	8.79	179	20	11.17
Hau Giang	181	1	0.55	173	0	0.00
Hung Yen	121	6	4.96	156	22	14.10
Long An	128	3	2.34	134	3	2.24
Ninh Binh	129	17	13.18	123	27	21.95
Quang Ninh	142	29	20.42	114	23	20.18
Soc Trang	134	16	11.94	136	10	7.35
Tien Giang	145	4	2.76	150	1	0.67
Ho Chi Minh	132	0	0.00	132	0	0.00
Tra Vinh	110	22	20.00	150	25	16.67
Tuyen Quang	129	9	6.98	125	4	3.20
Vinh Long	148	8	5.41	166	18	10.84
Vinh Phuc	141	1	0.71	120	1	0.83
<b>Total</b>	<b>3.092</b>	<b>190</b>	<b>6.14</b>	<b>3.043</b>	<b>202</b>	<b>6.64</b>

Table 15: The STH infection by rural and urban areas

Places	No. examination	No. (+)	%
Rural	4596	361	7,85
Urban	1539	31	2,01
<b>Total</b>	<b>6135</b>	<b>392</b>	<b>6,39</b>

Table 16: The situation of toilets at the primary school

Good toilet	Nothern provinces		Middle provinces		Southern provinces	
	Number	%	Number	%	Number	%
Good	39	97.5	10	100	55	100
Not good	1	2.5	0	0	0	0
Total	40	100	10	100	55	100

Table 17: The situation of domestic water in the primary school

Domestic water	Nothern provinces		Middle provinces		Southern provinces	
	Number	%	Number	Number	%	Number
Have	35	87.5	9	90	55	100
No have	5	12.5	1	10	0	0
Total	40	100	10	100	55	100

Total have 6,135 schools age children participated the survey in the 21 provinces in Vietnam. The number SAC of grade 3 was 5,271 (85.92%); grade 4 was 722 (11.77%) and grade 5 was 142 (2.31%).

The prevalences of STH infection in the 21 provinces are low 7.64 % and range from 1.15% to 21.09%.

The high prevalence of STH infection in SAC in Quang Ninh province was 20.31%; in Tra Vinh 18.08%; Ninh Binh 17.46%; Binh Thuan 17.25%; Hai Phong 9.97%, and Hung Yen 10.11%.

The prevalence of *Ascarislumbricoides* in 21 provinces was 1.06%, *Trichuris trichuira* was 2.49 % and hookworm 3.13 % only. Other parasite infection such as *Enterobius vermicularis* was 1.47%.

The some schools have prevalence for STH were very high 26% and up to 43.14%

Almost of the children had light infection with STH when intensity from 76,92% to 100%.

Five children had heavy infection (2.6%) with hookworm in Binh Duong, Binh Thuan and Soc Trang province while one case had *A. lumbricoides* heavy infection (1.54%) in Ninh Binh province only.

Three cases, four cases, three cases had moderate intensity infection with *A. lumbricoides*, *Trichuris trichuira* and with hookworm, respectively.

In Binh Thuan province, one case had infection with *A. lumbricoides* but 48 children infected with hookworm (16.9%). The same situation, there were 43 children infected with hookworm (16.54%) while none and 6 children infected with *A. lumbricoides* and *T. trichuira* in Tra Vinh, respectively. In Da Nang city, there were three case infections with hookworm only.

#### **4. CONCLUSION AND COMMENT**

In Quang Ninh province, the prevalence of the SYH infection in SAC higher than 20%, so we need to have plan for MDA deworming two time per year for SAC in this province near future. The MDA for SAC program will have positive effect STH infection and improved health for children. Also the awareness of children and parents about the disease and intestinal worm prevention will be increased.

But the prevalence of STH infection of SAC in Tra Vinh, Ninh Binh and Binh Thuan provinces were around 17-18%. The MDA plan for SAC in those provinces will be conduct 1time per year base on the MDA deworming guideline number 1932/QD-BYT date 19 May, 2016 of Vietnamese Ministry OF Health.

In Binh Thuan, Soc Trang, Tra Vinh provinces, the prevalences of hookworm infection are higher than other province in the Northern part. The Tuyen Quang, Tien Giang, Hau Giang, and Long An provinces are poor and mountain province but the prevalence of STH infection in there very low. NIMPE did not conduct any MDA campaign in there but maybe some other Organization including National and International supports the drug for deworming for children.

The control and prevention of STH in the 21 provinces will be used the MDA deworming guideline number 1932/QĐ-BYT date 19 May, 2016 of Vietnamese Ministry Of Health. If the prevalence of STH infection are  $\geq 20\%$  the MDA will be conducted two time per year as in Quang Ninh province. If the prevalences of STH infection are from 10% up to 20% the MDA deworming will be conducted 1 time per year with Tra Vinh, Ninh Binh, Binh Thuan and Hung Yen provinces. The rest provinces, the prevalence of the STH infection  $< 10\%$  the MDA will be carried out one time in two year.

The MDA deworming plan of the 21 provinces

Provinces	No. sample	No. General infection	Percent (%)	MDA Deworming plan in the future
An Giang	274	1	0.36	01 MDA round per 02 years
Bac Lieu	335	13	3.88	01 MDA round per 02 years
Binh Duong	326	14	4.29	01 MDA round per 02 years
Binh Thuan	284	49	17.25	01 MDA round per 01 year
Can Tho	286	4	1.40	01 MDA round per 02 years
Da Nang	255	3	1.18	01 MDA round per 02 years
Ha Noi	418	14	3.35	01 MDA round per 02 years
Hai Duong	277	8	2.89	01 MDA round per 02 years
Hai Phong	361	36	9.97	01 MDA round per 02 years
Hau Giang	354	1	0.28	01 MDA round per 02 years
Hung Yen	277	28	10.11	01 MDA round per 01 year
Long An	262	6	2.29	01 MDA round per 02 years
Ninh Binh	252	44	17.46	01 MDA round per 01 year
Quang Ninh	256	52	20.31	02 MDA round per 01 year
Soc Trang	270	26	9.63	01 MDA round per 02 years
Tien Giang	295	5	1.69	01 MDA round per

				02 years
Ho Chi Minh	264	0	0.00	No MDA
Tra Vinh	260	47	18.08	01/01Y
Tuyen Quang	254	13	5.12	01 MDA round per 02 years
Vinh Long	314	26	8.28	01 MDA round per 02 years
Vinh Phuc	261	2	0.77	01 MDA round per 02 years

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**Reporter**

**Do Trung Dung**