

CNM Annual Conference for 2012

Control on Helminth in Cambodia

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Naga World Hotel, Phnom Penh

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Parasitology and Entomology**

Outline

- The National Plan for Helminth Control Program
- Current Status of Helminth Control
- Main activities plan for 2013

Current status of the target disease

- Schistosomiasis (SCH)
- Soil transmitted helminth (STH)
- Strongyloidiasis (threadworm infection)
- Lymphatic filariasis (LF)
- Food Borne Trematodiasis (FBT), eg.
Opisthorchiasis

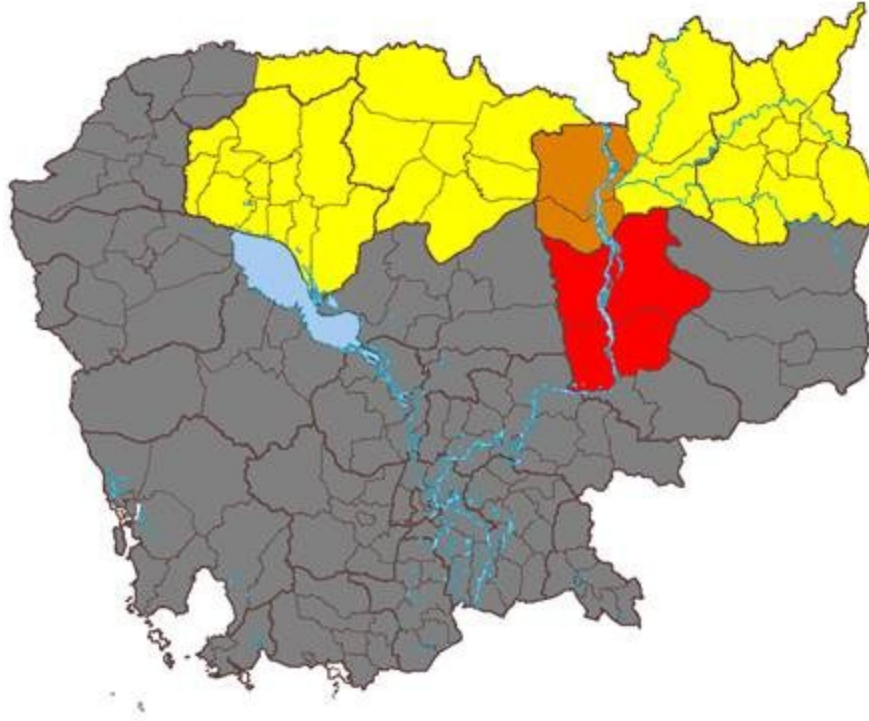
The groups at risk of each disease

- **SCH:** People living along Mekong river in high risk focal ecological areas (Kratie, Stung Treng)
- **STH:** pre-school children, schoolchildren and women of child bearing age (WCBA).
- **Strongyloidiasis:** poor population segment in endemic provinces/districts, in particular young children;
- **LF:** the entire population in 6 endemic districts (this group has now received 5 rounds of mass drug treatment and may no longer be at high risk)
- **FBT:** children and adults eating raw food

National Plan for Helminth Control in Cambodia

- The Goal for the programme:
 - Elimination of LF
 - Elimination of Schistosomiasis from public Health problem
 - To reduce the morbidity of STH, FBT , Strongyloidiasis in Cambodia through an integrated control strategy by using preventive chemotherapy combined with health education

The distribution of Helminthiasis in Cambodia



Legend:

Grey: areas where STH are transmitted (all Cambodia)

Yellow: districts with additional LF transmission

Red: districts where Schisto is transmitted

Orange: districts where in addition to STH, LF and Schisto are also transmitted

Cambodia is entirely endemic for STH. Lymphatic Filariasis (LF) is transmitted in 4 regions. Schistosomiasis (Schisto) is transmitted in 2 provinces on Mekong River.

Reasons for high transmission:

1. Hot & humid climate

2. Lack of sanitation

3. Hygiene behavior

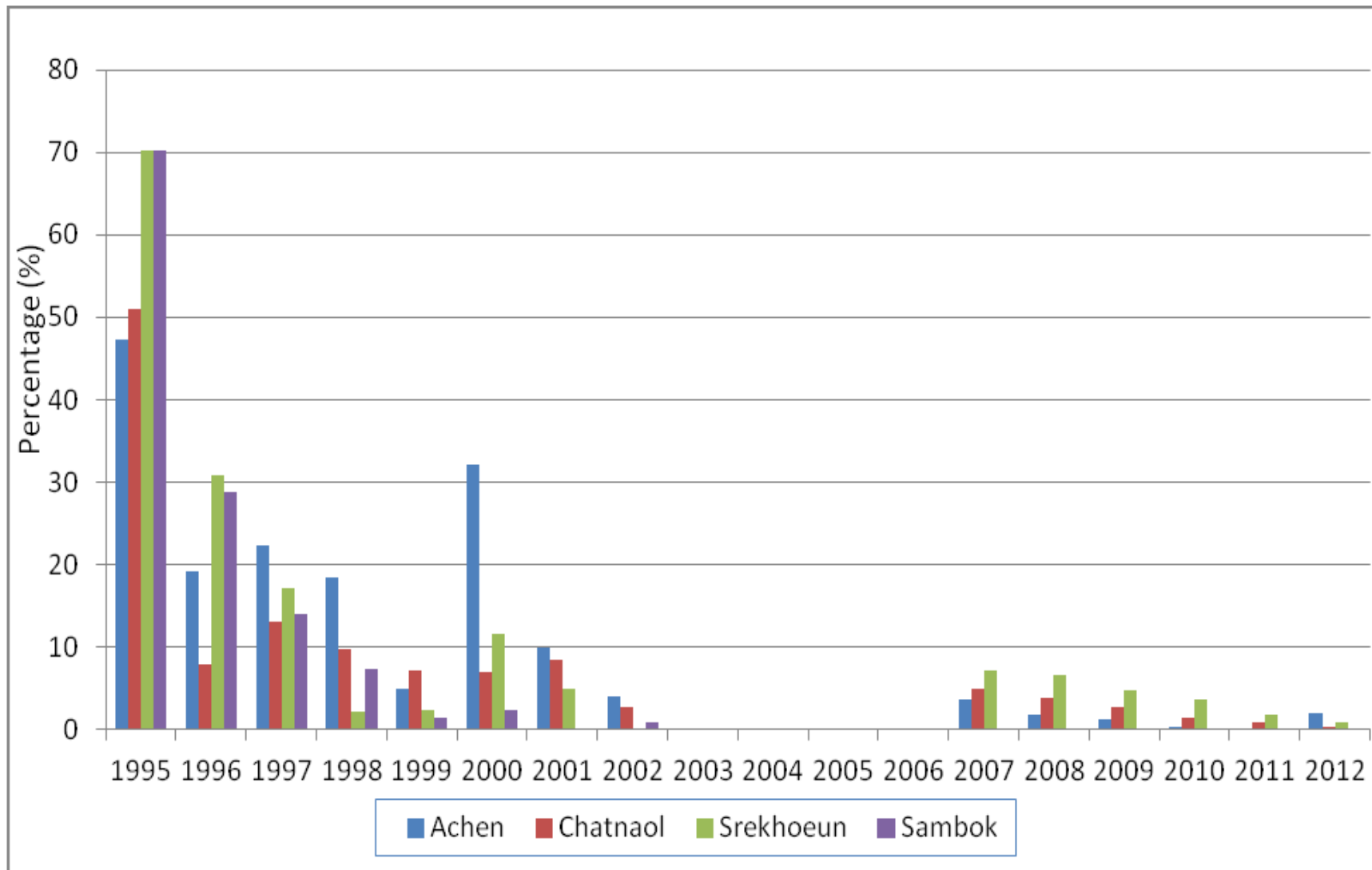
Status of Schistosomiasis

- MDA for schistosomiasis is given every year to approximately 80,000 individuals in the two endemic provinces of Kratie and Stung Treng.
- Before the Ministry of Health began universal chemotherapy with praziquantel in 1995, severe morbidity and mortality in Kratie and Stung Treng were common.
- Throughout the 17 years that the program continued, MDA coverage reached between 62% and 86% of the population
- After this intervention was instituted, prevalence decreased from an average of 72% to less than 5% in four sentinel villages over 10 years.
- No new severe cases have been reported since 2006.

Epidemiological survey and Monitoring

- Stool examination using Kato-Katz method
 - Stool samples collected in sentinel/selected villages:
Kratie 1500, Stung Treng 1500 every year
- Prevalence of *S. mekongi* has dramatically reduced from 70 % (1995) to < 5% (2011) in both provinces
- Serological test
 - Blood samples:
Kratie 500, Stung Treng 150 every year
- Prevalence of *S. mekongi* by ELISA test has reduced from 96.7 % (1997) to < 30% (2011) in both provinces

Follow-up the impact of MDA in the four sentinel site in Kratie province in 2012



Infection: *S. mekongi* & *O. viverrini* Kato-Katz and FECT technique

	Char Thnaol (N=439) n (%)	Kampong Krobey (N=486) n (%)	Koh Phdao (N=627) n (%)	Sre Khoen (N=623) n (%)	Total (N=2175) n (%)
Kato-Katz					
<i>S. mekongi</i>	24 (5.5)	11 (2.3)	0 (0.0)	2 (0.3)	37 (1.7)
<i>O. viverrini</i>	2 (0.6)	0 (0.0)	2 (0.3)	1 (0.2)	5 (0.2)
FECT					
<i>S. mekongi</i>	24 (5.5)	11 (2.3)	0 (0.0)	2 (0.3)	37 (1.7)
<i>O. viverrini</i>	3 (0.7)	0 (0.0)	2 (0.3)	1 (0.2)	6 (0.3)
Combined Kato-Katz+ FECT					
<i>S. mekongi</i>	24 (5.5)	11 (2.3)	0 (0.0)	2 (0.3)	37 (1.7)
<i>O. viverrini</i>	3 (0.7)	0 (0.0)	2 (0.3)	1 (0.2)	6 (0.3)

Infection: *Neotricula* snail

Intermediate host	Char Thnaol	Kampong Krobey	Koh Phdao	Sre Khoen	Total
<i>Neotricula</i> collected	1140	1050	1350	1300	4840
infected N (%)	2 (0.17)	0	0	2 (0.2)	4 (0.08)

Soil-Transmitted Helminth



Initial situation

STH prevalence constantly over 50% since 1997.

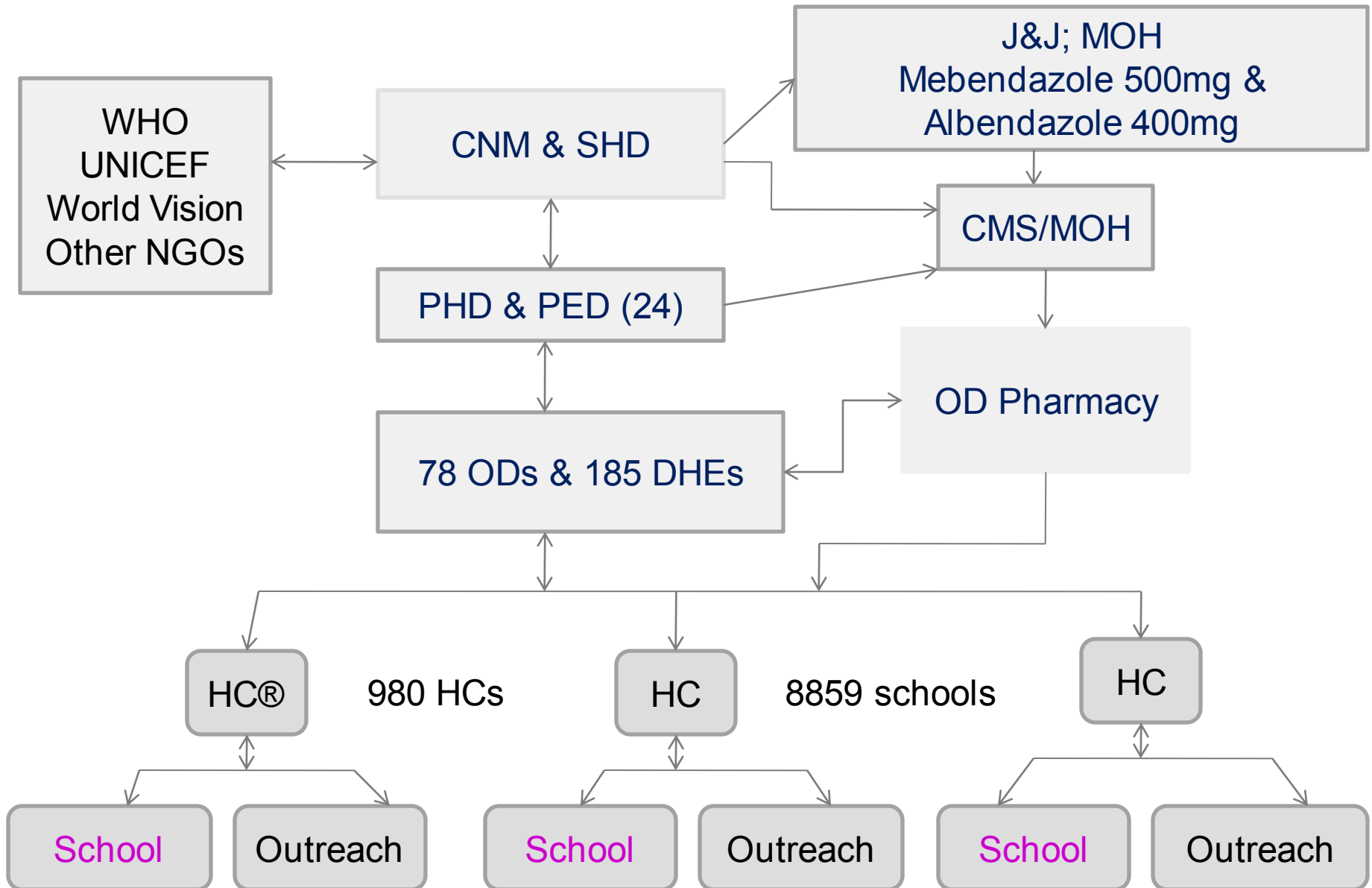
Large areas of the country with prevalence over 70% (NTF 2004)

Control strategy

Reach all primary school children with

- mebendazole (Two treatments year)
- Health education

Deworming Structure to the target group in Cambodia

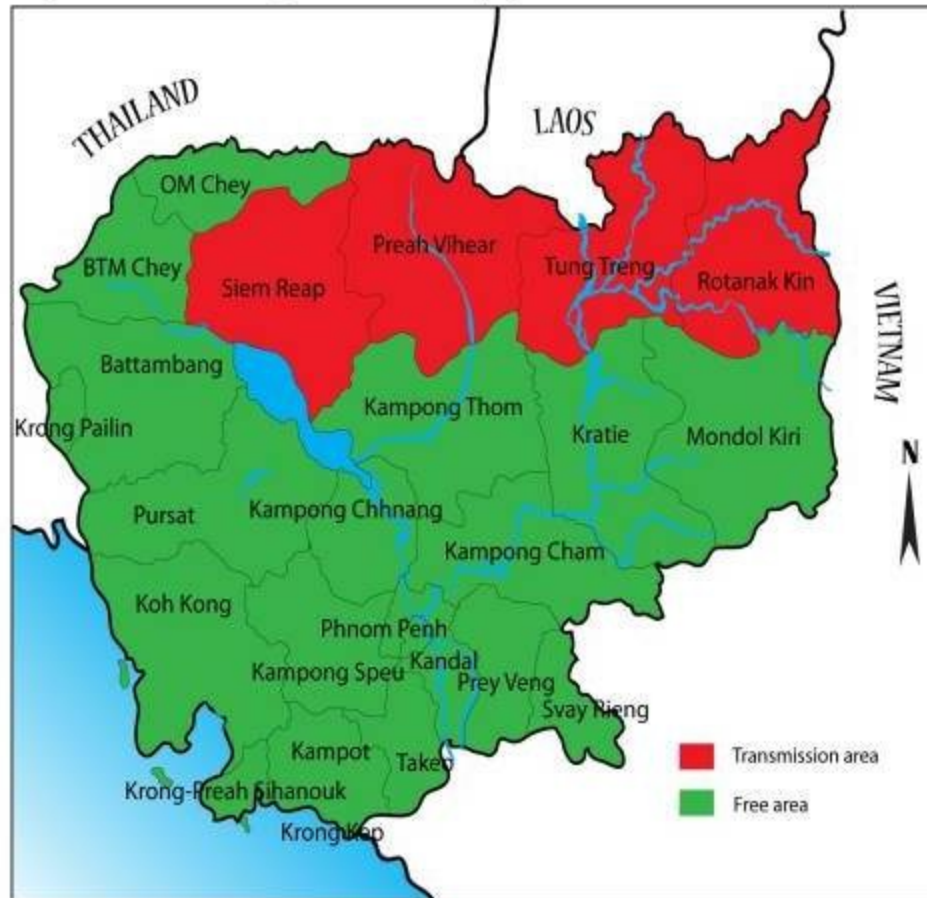


Mebendazole/Albendazole Coverage to the target population at risk in 2012

Target group at risk	No. of target group at risk	Target group at risk received deworming tablets (%) , round I	Target group at risk received deworming tablets (%), round II
Pre-school children (12-59 month)	1,386,453	1,289,402 (93%)	1,344,859 (97%)
School Age Children (6-14y)	2,628,381	2,444,394 (93%)	2,523,246 (96%)
Women of Child Bearing Age (15-45y) pregnancy women	3,571,430	1,038,495 (21.1)	

Elimination of Lymphatic Filariasis

Maps of Cambodia showing endemic areas of lymphatic



- Lymphatic Filariasis (LF) caused by *Wucheraria bancrofti* is endemic in 4 provinces (18 district).
- Cambodia completes five rounds of MDA in all its endemic IUs by the end of 2009.
- Stop-MDA surveys were conducted in all IUs (18 districts in 4 provinces) in 2010 using ICT survey sampling 900 in each IU (total 5,400 samples). It showed that transmission of LF has been reduced (0.1 – 0.6%) below critical levels in each IU. Thus further MDA will not be required.

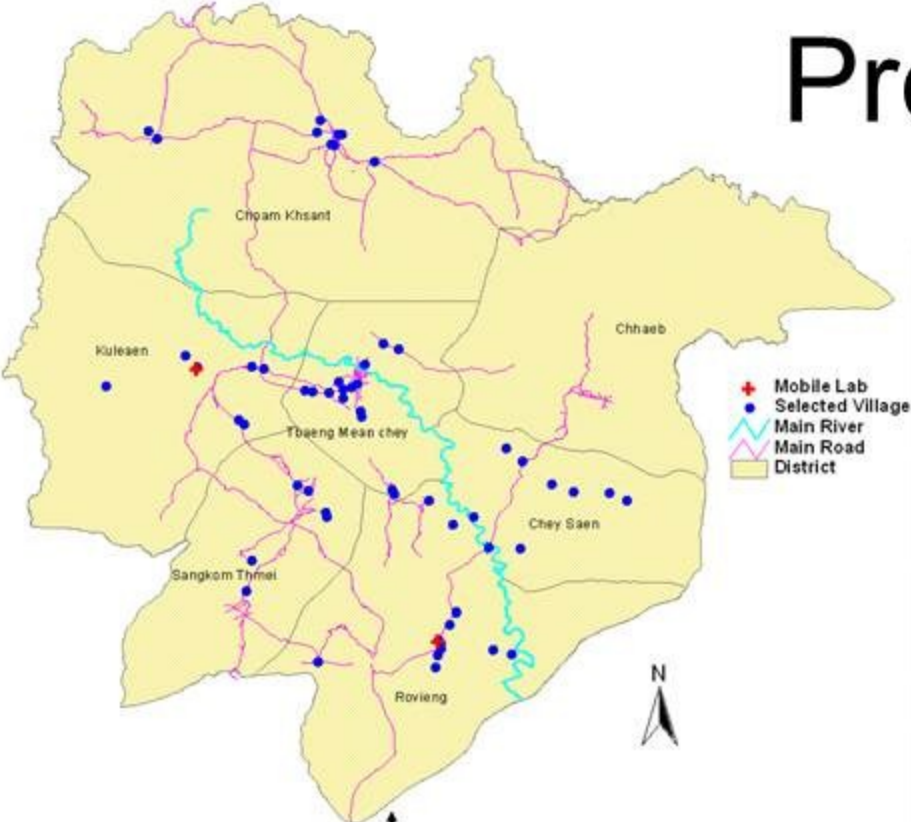
Strongyloidiasis

- Threadworm in Cambodia:
 - What best diagnosis?
 - Unknown distribution, prevalence?
 - Impact on infection after regular treatment (MDA)?

Current Situation of Strongyloidiasis in Cambodia

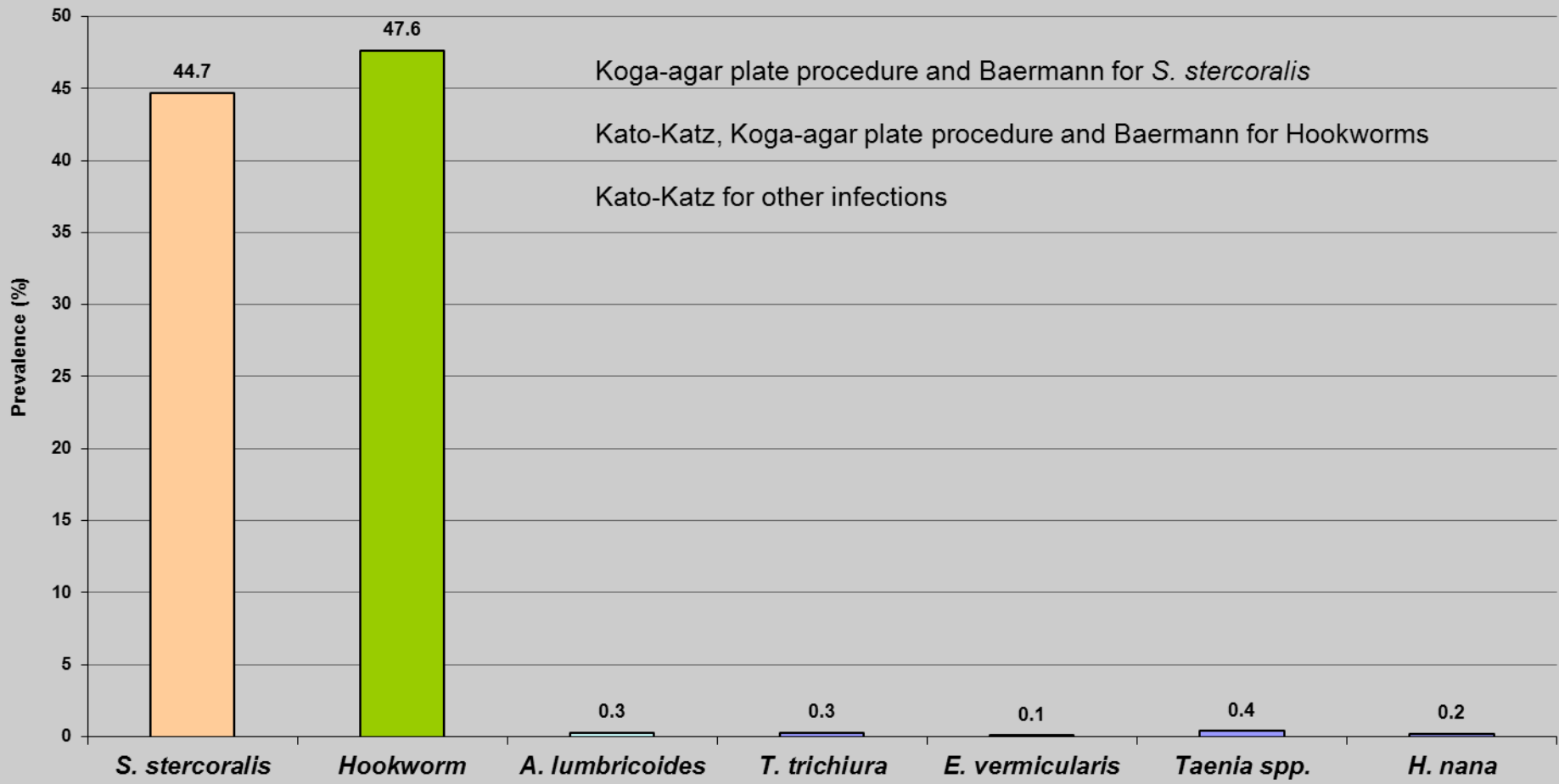
- Swiss Tropical Institute of Public Health (Swiss TPH) supported the baseline assessment surveys in 2009/2010. Infection rates have ranged from 40 – 60% in the districts of two provinces surveyed(Preah Vihea and Takeo).
- It shows the disease is highly endemic in the assessed province affecting all age groups.
- Current treatment strategies particularly the treatment with *ivermectin*.

Preah Vihear 2010

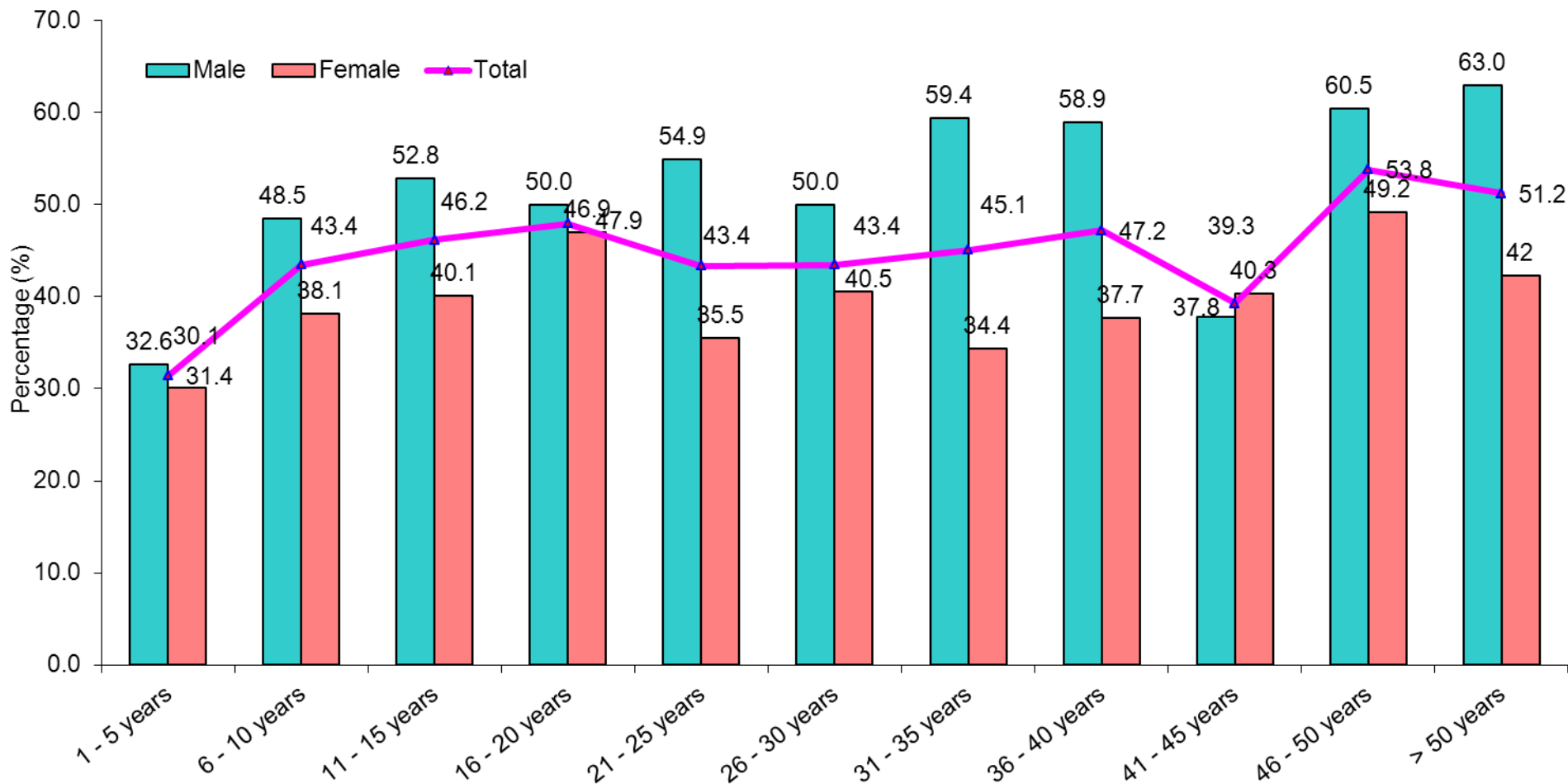


3560	Enroll		
	220: Did not submit any stool sample		
3340 (93.8%)	1st Stool		
	592: Did not submit 2nd stool sample		
2748 (77.2%)	2nd Stool		
	352: Missing for Baermann technique		
2396 (67.3%)	2 Stool Samples analysed by KK, KA & BM		

Strongyloides stercoralis 2010



Prevalence of *S. stercoralis* by Age Group among 2396 general population in Preah Vihear province, 2010



Current situation of Food Borne Trematode in Cambodia (2010-2012)

- Habits of eating raw or undercook fish:
 - Takeo, Kandal, Kampong Cham, Kg. Thom with prevalence range from 10% to 65%.
- No nationwide chemotherapy intervention is being implement, except the places where the survey were confirmed.

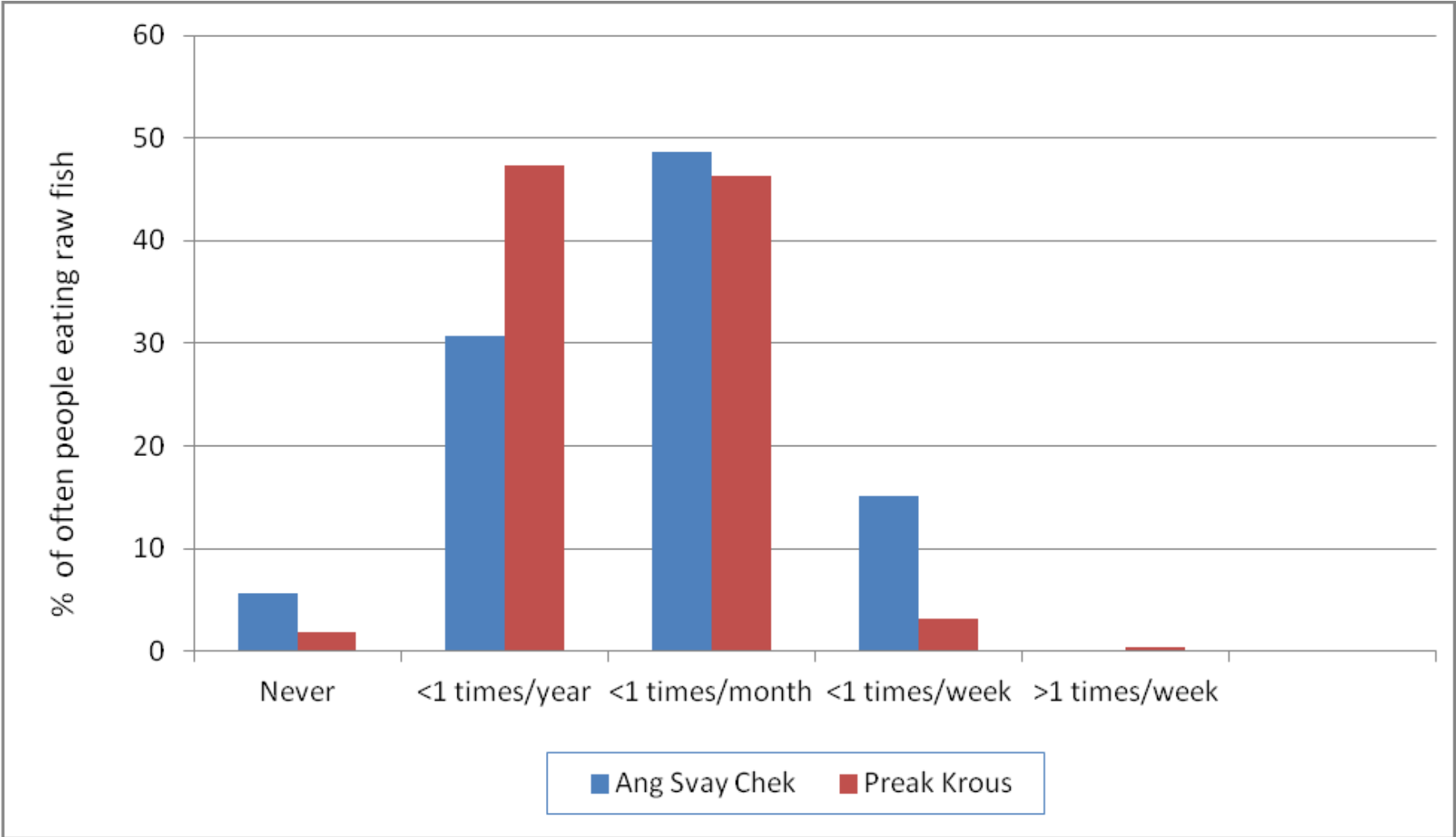
***Opisthorchis viverini* Survey in Kampong Thom, Kampong Cham and Prey Veng province in June and July 2012.**

<i>Province</i>	<i>District</i>	<i>Commune</i>	<i>Village</i>	<i>No. stool sample</i>	<i>O.v positive (%)</i>	<i>Hookworm Positive (%)</i>
Kg. Thom	Baray	Tnaot	Kang Meas	183	89 (48.6)	33 (18.0)
	Santouk	Tipau	Thlok	104	11 (10.6)	38 (36.5)
Kg. Cham	Kg. Siem	Srak	Lpeak	126	82 (65.1)	16 (12.7)
	Kang Meas	Preak Krabao	Pousala pi	105	22 (21.0)	6 (5.7)
	Srey Santhor	Baray	Kamplak	102	5 (4.9)	0
			Banteay	165	47 (28.5)	3 (1.8)
		Preak Por	Prey Tbes	160	1 (0.6)	26 (16.3)
Prey Veng	Baphnom	Theay	Torp Sdach	116	0	23 (19.8)
Total				1061	257 (24.2)	145 (13.7)

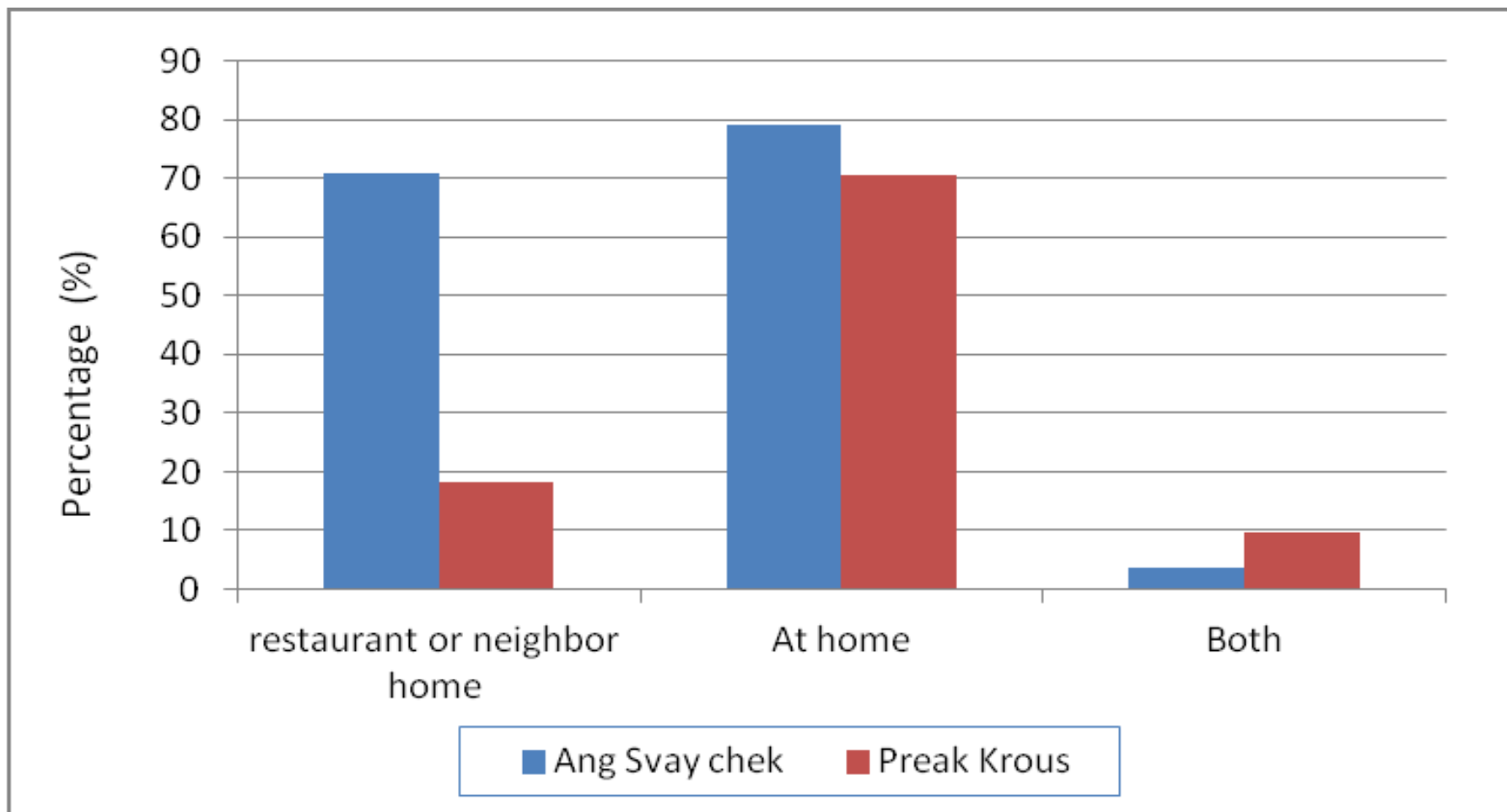
Follow-up *Opisthorchis viverrini* Survey in Kampong Cham and Takeo province after one year of treatment by Praziquantel in August 2012.

Province	District	Village	No. stool sample	O.v positive (%)	Hookworm Positive (%)	Intensity average of O.v/Hw
Kg. Cham	Kang Meas	Preak Kros	199	32 (16.1)	10 (5.0)	46/32
		Anglong Ak Khang Koeut	177	31 (17.5)	2 (1.1)	98/36
Takeo	Prey Kabas	Ang Svay chek	195	20 (10.3)	18 (9.2)	331/221

The percentage of population behavior to eat the raw fish in the O.v endemic areas in Angsvay Check , Prey Kabas district (Takeo province) and Preak Krous village, Korng Meas district (Kg. Cham province) by interview survey in August 2012.



The percentage of the right places that the people eating raw fish in two villages in Prey Kabas district, Takeo province and Korng Meas district, Kg. Cham province interview O.v survey in August 2012.



Activities plan for 2013

- Schistosomiasis:
 - Annual MAD for schistosomiasis
 - Monitoring the impact of the intervention by stool examination and serology in sentinel site and selected sites in Kratie and Stung Treng provinces.
- Filariasis.
 - Transmission Assessment Survey by using ICT card in 6 IUs.
- Strongyloidiasis.
 - follow-up of all individuals treated in 2012, and additionally check on individuals negative in the 2012 survey.
 - Provide MDA to population at risk in Preah Vihea province
- Opisthorchiasis.
 - Epidemiological in O.v suspecte villages to define the distribution
 - Provide intervention (MDA+HE)

Activities Plan for STH in 2013: Monitoring STH Prevalence & Intensity

- Scale up MDA Coverage
- STH nationwide data was not collected for the last five years.
- Plan in Q1, 2013 to conduct Nationwide survey to reassess the prevalence and intensity of STH in the country following several years of successful MDA with school age children.
- The survey will be follow the protocol of WHO

Partnership for Helminth control in Cambodia

- Ministry of Health (HSSP2; ADB-GMS)
- Ministry of Education Youth and Sport
- Swiss TPH
- Sasakawa Memorial Health Foundation
- Dokkyo University and Tsukuba University, Japan
- UNICEF
- KAHP
- J&J; World Vision Australia
- WHO
- IDRC
- USAID

**Thank you for
your attention**