



TEUK SAAT 1001

# "Measuring the Impact of Teuk Saat 1001's Safe Drinking Water Initiative on Children (Cambodia)

Organization

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## I. WHAT IS THE PROBLEM WE WANT TO SOLVE

~750

million people lack access to improved drinking water

3,6 Million

die every year due to water-related diseases

50%

of hospital beds in developing countries are occupied by people with waterborne diseases

80%

Of people with no access to safe water are in rural areas



# I. WHAT IS THE PROBLEM WE WANT TO SOLVE (Cont.)

GLOBLE LEVEL:  
ISSUE

**THE GLOBAL GOALS**  
For Sustainable Development

Awaken LOVE<sup>®</sup> supports

1 NO POVERTY

2 ZERO HUNGER

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

5 GENDER EQUALITY

6 CLEAN WATER AND SANITATION

7 AFFORDABLE AND CLEAN ENERGY

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

10 REDUCED INEQUALITIES

11 SUSTAINABLE CITIES AND COMMUNITIES

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

13 CLIMATE ACTION

14 LIFE BELOW WATER

15 LIFE ON LAND

16 PEACE AND JUSTICE

17 PARTNERSHIPS FOR THE GOALS

THE GLOBAL GOALS  
For Sustainable Development



# I.WHAT IS THE PROBLEM WE WANT TO SOLVE (Cont.)



**BY 2030 EVERYONE  
WILL HAVE SAFE WATER  
TO DRINK**

#GlobalGoals

**THE GLOBAL GOALS**  
For Sustainable Development



**I SUPPORT  
GOAL 6  
CLEAN WATER  
AND SANITATION**

THOUSANDS  
HAVE LIVED  
**WITHOUT**  
LOVE  
**NOT ONE**  
**WITHOUT**  
**WATER**

W.H. AUDEN

#GlobalGoals



## II. WHO WE ARE what we do (the Innovative solution )

Teuk Saat 1001 is Non profit Cambodian organization, registered since 2007 and acting as a non-profit social enterprise that supports community access to safe drinking water with its water-filtration plants through local Micro-franchisees in rural Cambodian.

### Vision

A leading Cambodian organization to promote the health of rural communities in a sustainable manner.

### Mission

Support the safe drinking water sector in rural communities by applying social enterprise model.



## II. WHO WE ARE and what we do (the Innovative solution ) (cont-)

# THE 3 CORNERSTONES

**TECHINCAL: drinking water**



Focusing on health by giving access to safe drinking water ( 2 L/day per person )

Project support to set up water treatment plant, Local community or authority contribute land and water sources

**ECONOMIC**



Selling price set to US \$ 0.01 per litre

Business Management manage by local entrepreneur with support from local authority and community committee

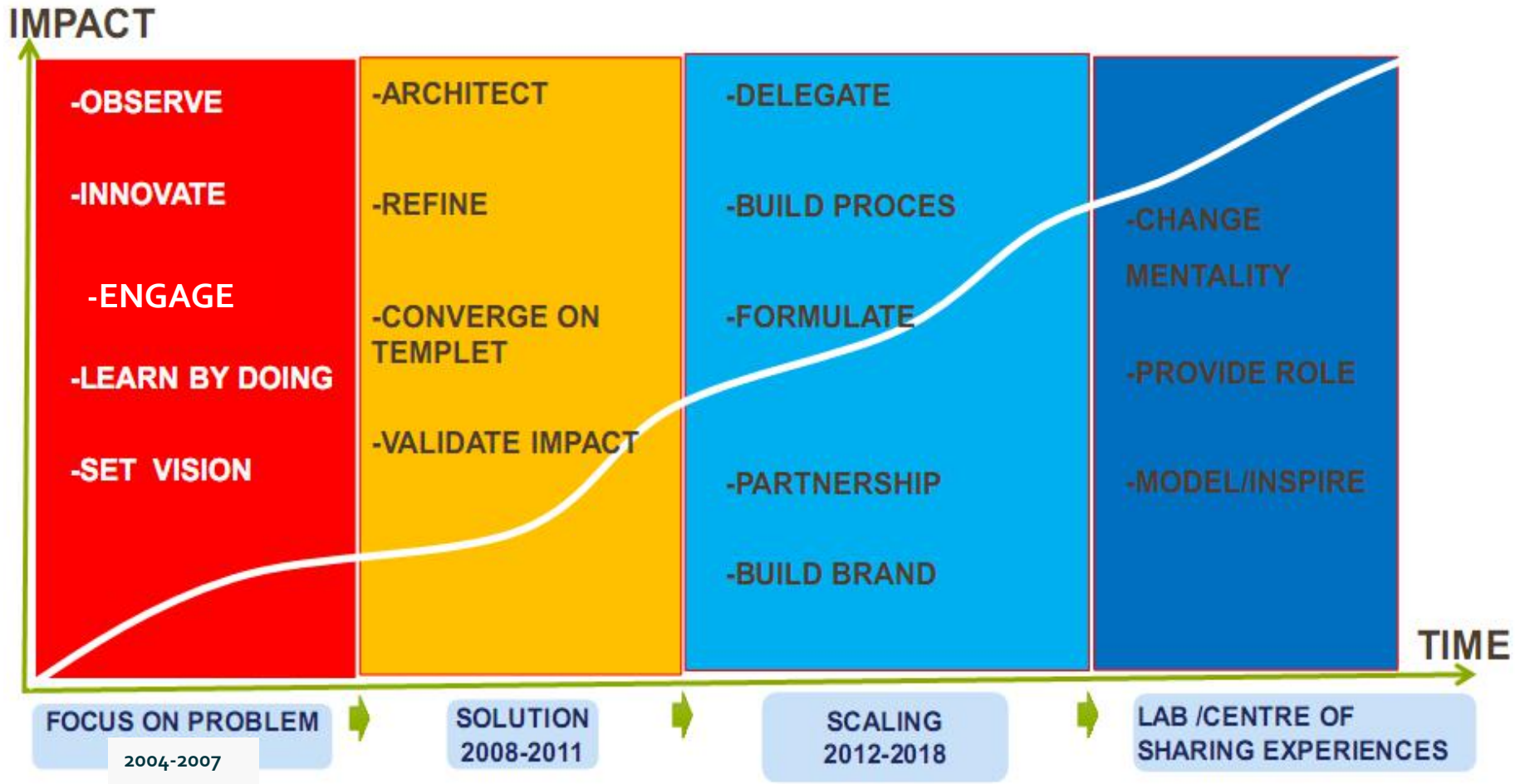
**MANAGEMENT**



The « entrepreneur » ensures the sustainability of the installation, assisted by a « local platform »



# III. Achievement



THE ROAD TOWARDS A SUSTAINABLE SOCIAL BUSINESS





## III. Achievement (Cont-) June 2017

**WATER  
KIOSK =  
170 In 170  
communes**

- Technology – low energy consumption
- Environment

**BENEFICERIES =  
More then 400K  
customers**

- Safe drinking water at an affordable price

**LOCAL  
ENTREPRENEURS  
=  
443 (entrepreneurs  
+operators)**

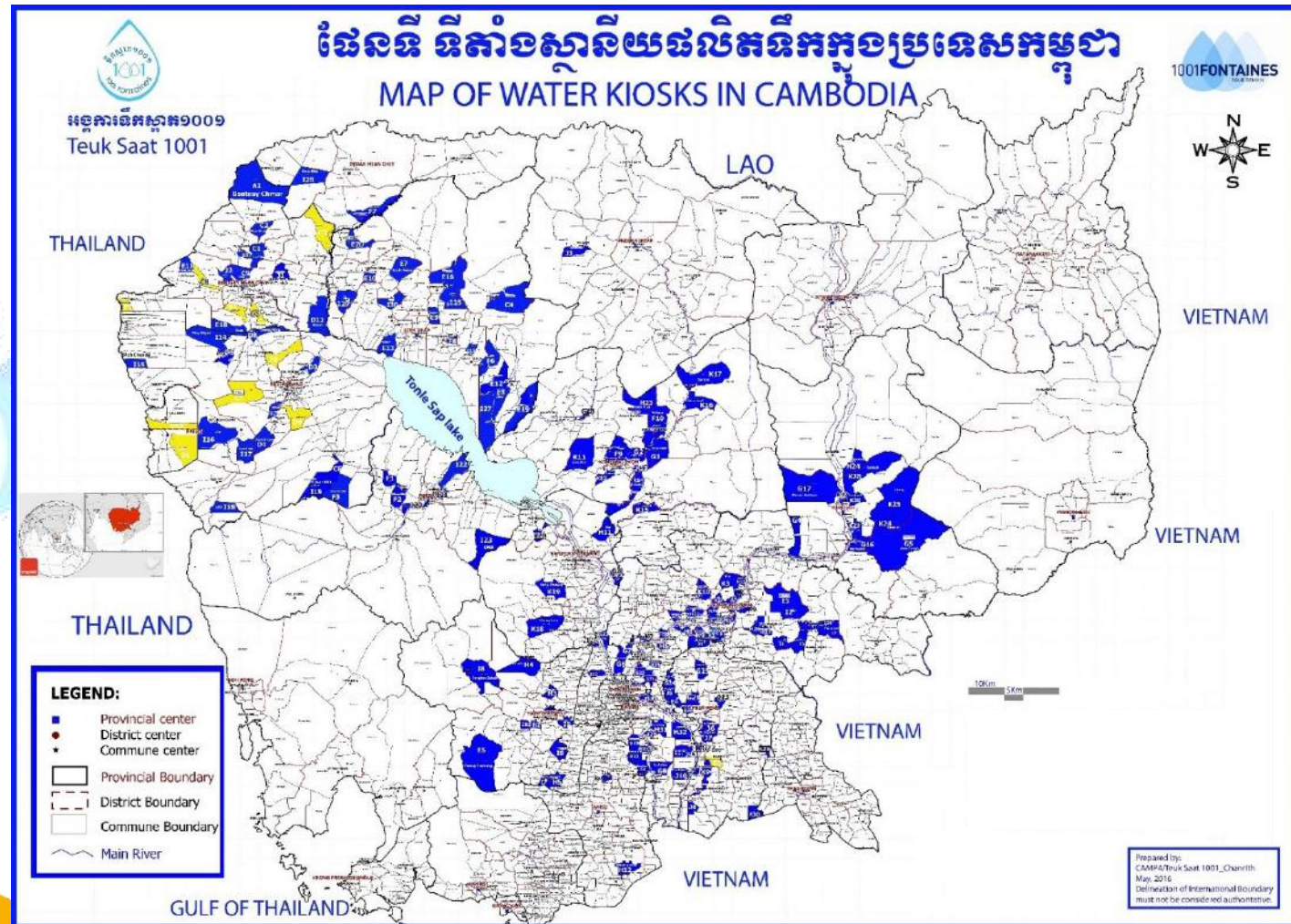
- Equipped with «Entrepreneur Academy» during 1 year through workshop and on site coaching

**PEOPLE  
EMPOWERMENT  
=  
67 TEUK SAAT  
(3 platform+national)**

- Workforce gets better than market wage
- Health insurance
- Accident insurance



### III. Achievement (Cont-)



Location of Water Kiosk



## IV. Impact Studies

The major objective of this study is to measure to what extent the health of the beneficiaries of TEUK SAAT1001/1001 fontaines services may be improved by such services.

More specifically, two populations have been observed:

- **Children under 5**, within their families (Cohort study), for whom diarrheal diseases occurrences have been reported and correlated to the water source used by the family,
- **Children between 6 and 12**, where attendance at school has been measured.

These groups have been observed during a 6 month period, during which each family of the cohort study has been visited twice a month in order to record potential diarrheal diseases.

For the schools study, attendance rates have been extracted from the attendance reports of each school.



## IV. Impact Studies

1. Approach and methodology
2. Project Timeline
3. Study findings





# Approach and methodology

## # Research methodology

### # HOUSEHOLDS

#Target Respondent

#Diary Record

### # SCHOOL

#School selection

#Diary record





## Schools study

The schools study has been conducted in the primary schools of 8 different villages :

- 4 villages where a *1001 fontaines* safe water production facility had been established (for at least 2 years) and where the local *1001 fontaines* producer delivers, every schoolday, free of charge, a 20 Litre bottle of safe water in each classroom (under the 1001 fontaines “Water in School” program). 1,986 children composed this “Intervention Group”,
- 4 villages where no *1001 fontaines* project has ever been conducted, and where children, at school, have to rely on the usual sources of water they bring from home or find in the neighbourhood of their school. 1,534 children composed this “Control Group”.



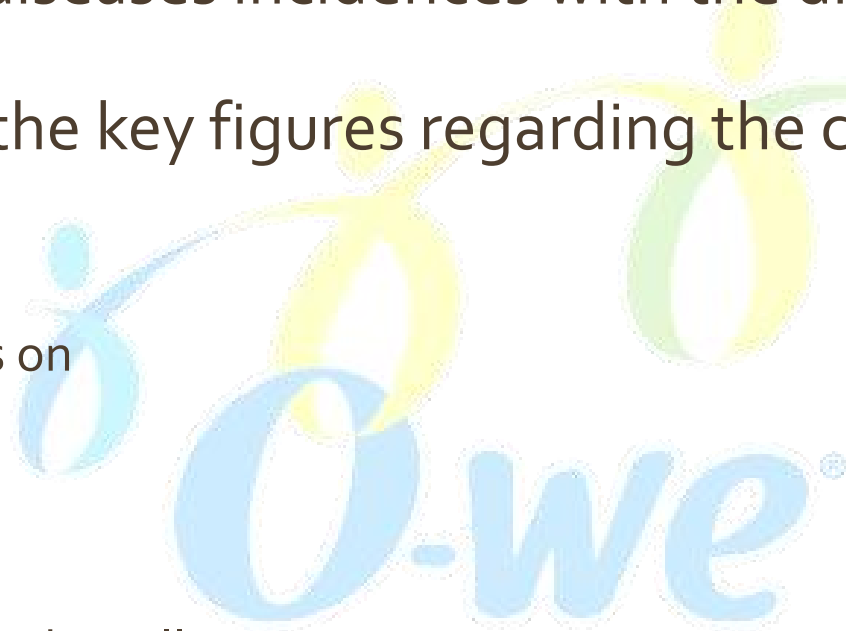
# Cohort study

This study has focused on children under 5, within their families, and has tried to correlate their diarrheal diseases incidences with the drinking water sources they used to consume.

The following list shows the key figures regarding the cohort study participants.

## Basic demographics

- 4275 completed follow-up visits on
- 376 participants
- 310 homes
- 15 villages
- 340 participants were interviewed on all 12 occasions
- 48.4% Male and 51.6% Female





# Approach and methodology

## # Targer respondent : HOUSEHOLDS

- Male or female
- Key role as careers in the household
- Have minimum one child in primary school
- Can read and write sufficiently to complete the diary





## 3. Project Timeline

This study has been conducted between January 1<sup>st</sup>, 2011 and October 31<sup>st</sup>, 2012.

**Observation period** was Dec 1<sup>st</sup> 2011 to May 31<sup>st</sup> 2012. Most of this period corresponds to the “dry season” (Dec 1<sup>st</sup> to mid April), rain having started to fall by mid-April 2012.



## 3. Project Timeline

The study has been conducted according to the following study:

- Jan 1st – March 31st , 2011 : Preparation of the research protocol
- April 1st – November 30th, 2011 : Recruitment of the families (Cohort Study) and selection of the schools (Schools study)
- December 1st, 2011 – May 31st, 2012 : Field data collection
- June 1st – October 31st, 2012 : Data Analysis.



## 3. Project Timeline

### Scientific Committee

Many actors have contributed to ensure that the study was conducted according to the best practices of epidemiology.

A Scientific Committee has guided the study, including the following persons:

- Professor Paul Hunter (University of East Anglia)
- Professor Philippe Hartemann ( Faculté de Médecine de Nancy)
- Doctor Christophe Longuet (Fondation Mérieux)
- Doctor Hassan (WHO Cambodia).

The research protocol has been established by Professor's Hunter department in University of East Anglia. All data collection has been subcontracted to an independant institute, Indochina Research Ltd, based in Cambodia.



# Schools study findings: Major findings



Week		Contr.	Interv.
Children		<b>1534</b>	<b>1986</b>
Dec	4	4,8%	1,0%
	11	4,5%	1,1%
	18	4,4%	1,3%
	25	4,6%	1,1%
Jan	1	4,8%	2,6%
	8	4,1%	2,5%
	15	4,1%	2,7%
	22	3,6%	3,0%
	29	4,1%	1,3%
Feb	5	3,5%	1,2%
	12	3,8%	1,3%
	19	3,7%	1,3%
	26	3,8%	2,3%
Mar	4	4,2%	1,9%
	11	4,3%	3,0%
	18	4,1%	3,0%
	25	4,6%	3,5%
Apr	1	12,2%	10,5%
	8	0,0%	0,0%
	15	0,0%	0,0%
	22	20,9%	17,9%
	29	10,5%	10,8%
May	6	14,0%	13,9%
	13	10,7%	7,6%
	20	12,1%	12,7%
	27	7,1%	6,8%
Total		6,7%	4,8%



**Absenteism reduced by 55 %**

Khmer New Year vacation

Rainy season



## 4. Study findings: Schools study

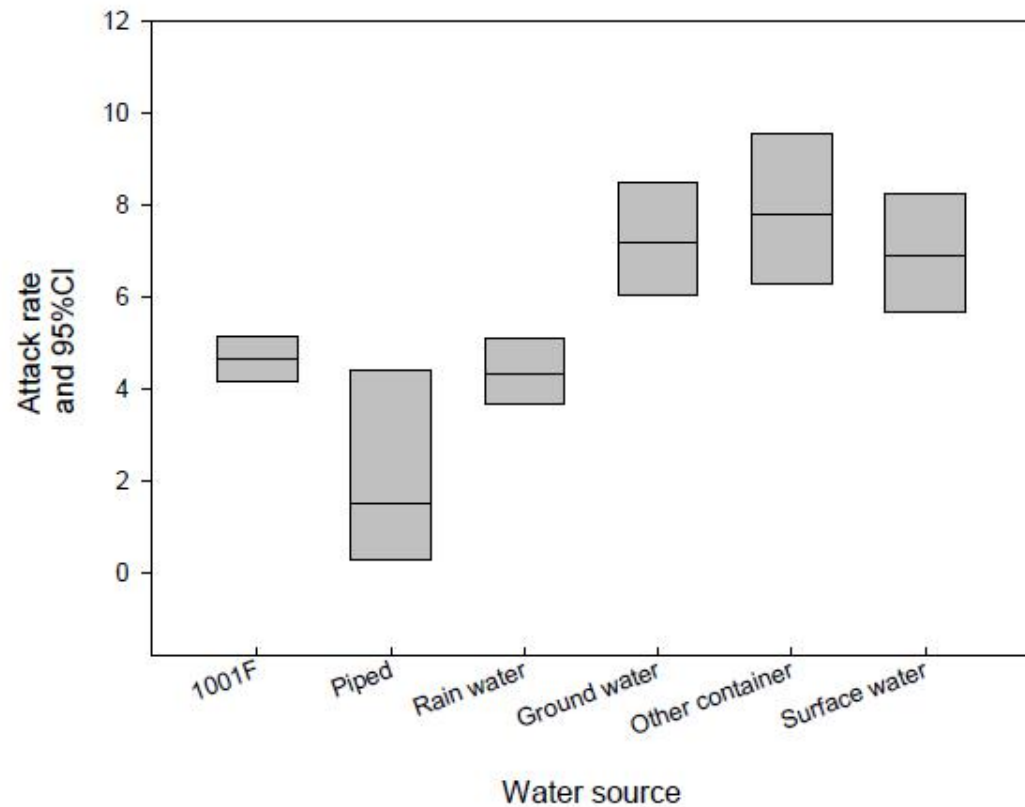
The comparison of attendance statistics between two groups of schools, one where safe water was made available, every schooldays, to the children, while the children of the other group used their usual water sources, has shown that the absenteeism, during the dry season, was reduced by 55 to 75% for the children of the first group.

Although we do not suggest that a similar reduction factor might be automatically expected on the water-borne diseases preventing them to attend the school, we believe that this suggests that this provision of safe water sufficiently improves the child's general wellbeing as well as the learning and experience of the school day as he/she is better hydrated. Consequently they are more likely to attend school the following day.



## 4. Study findings: Cohort study

Crude annual attack rates by water source





## 4. Study findings: Cohort study

The study clearly shows that, as an alternative to piped systems which appear as the safest water source but obviously cannot be deployed, for investment cost reasons, widely in rural areas, two water sources (Rain Harvesting and *1001 fontaines* supply) can be associated with reduced childhood diarrhea while other alternatives can hardly be.

Other water sources (groundwater as well as surface water) show a probability of getting ill 30 to 60% higher than these two water sources, result which may surely be associated to the conditions of transportation or storage of such water (promoting its contamination before its consumption) as well as to some poor practices in the hygiene area.



# THANKS YOU

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- in 8 schools, 4 of which received one 20 L container of treated drinking water per day
- we were conducting a longitudinal study of childhood diarrhoea and water use in 25 villages. These villages had been chosen at random from all villages with an established 1001F presence or through a process of propensity score matching, the details of which is described elsewhere [\[10\]](#). Four schools from these 25 villages were in receipt of the free school water scheme and willing and able to provide absenteeism data. Four control schools were chosen from the other 25 villages based on number of registered students present and the proportion of students under 14 years closest to those values of the intervention schools. The head teacher was then approached and invited to participate.
- Data collection was based on routinely collected absenteeism data provided to the study team by the head teacher. Data was provided from the week beginning 4<sup>th</sup> December 2011 to 31<sup>st</sup> May 2012. This period spread over two school terms one of which was in the dry season and the other the wet season.



- Data was collected **for 26 consecutive weeks**. Three schools were closed during week 18, all schools were closed during week 19, and all but one in week 20. The dry season was taken to include all the weeks before the break in week 19 and the wet season in weeks subsequent to this holiday. Across all eight schools this represented 60,194 child weeks of follow-up. The overall absenteeism rate was 5.57%. [Figure 1](#) shows the absenteeism rate for each school by week. The most obvious finding was the dramatic increase in absenteeism during the wet season, towards the end of the study period. This was not surprising given the fact that in many villages, children would be kept off school at this time to help in the fields.